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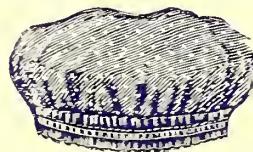
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AUGUST 14, 1915

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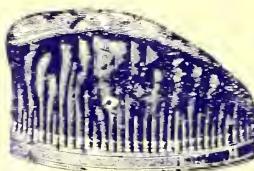
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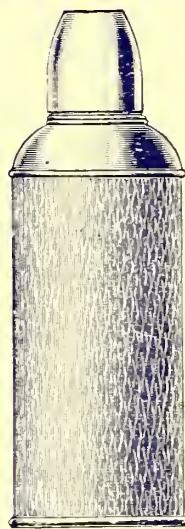
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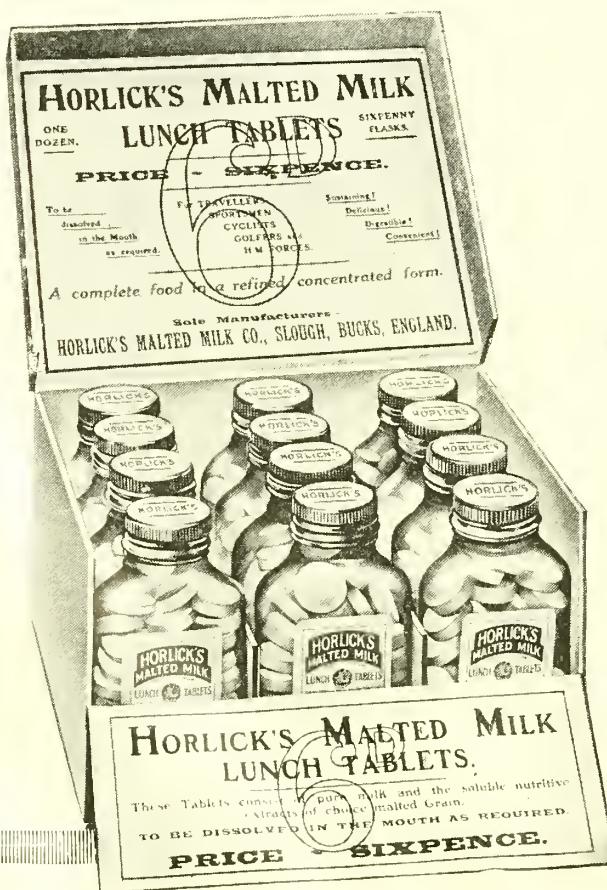
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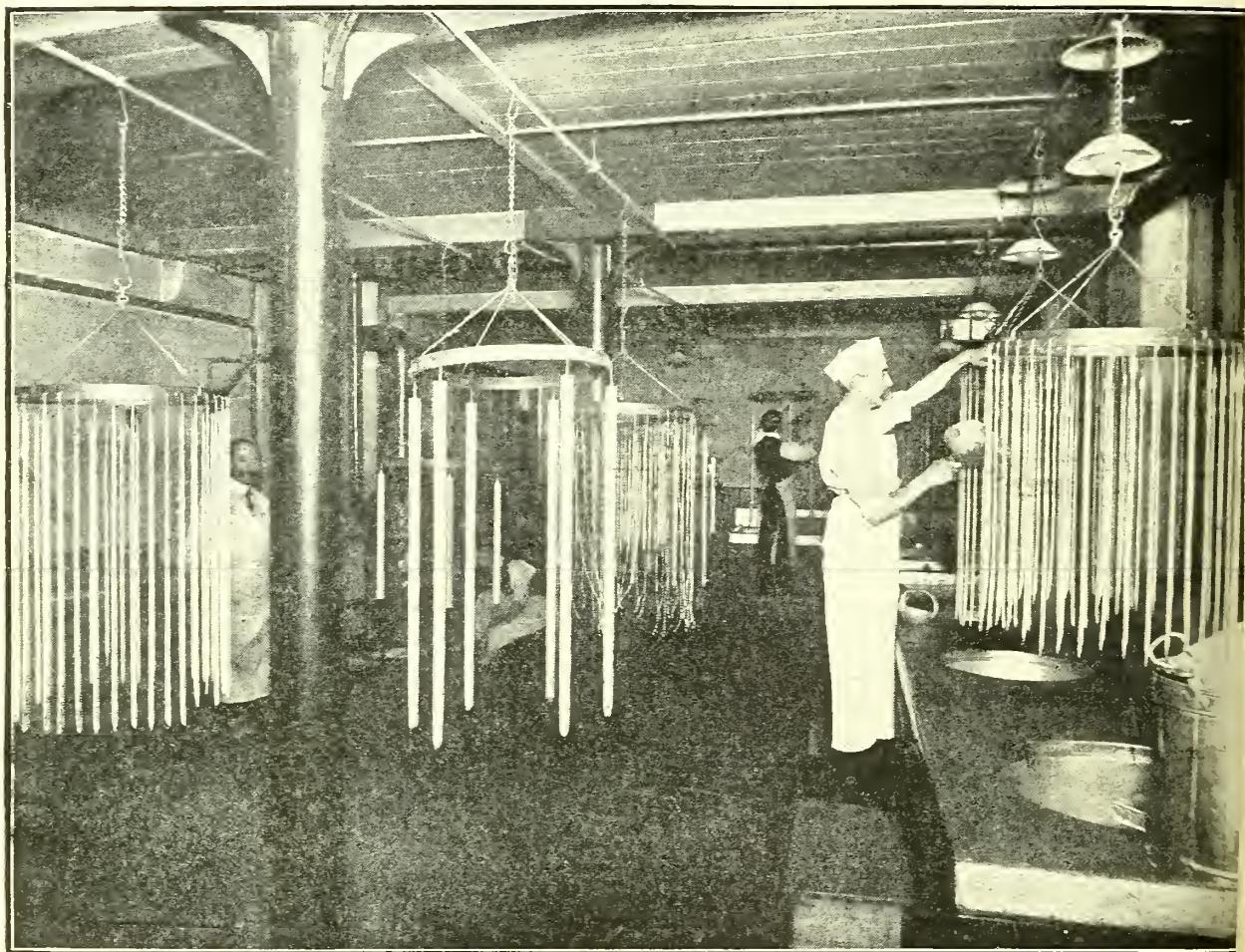
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AUG. 14, 1915



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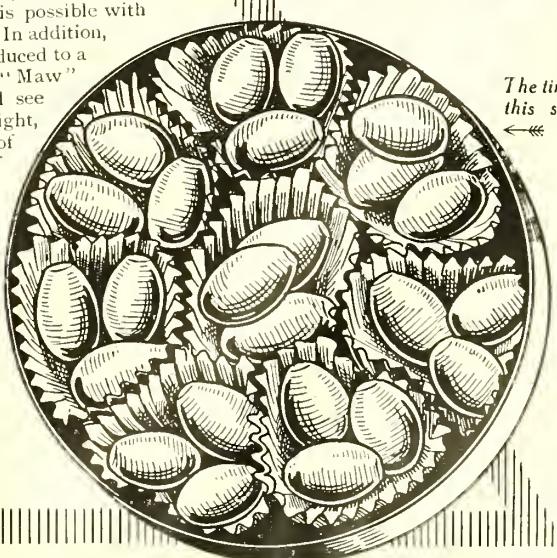
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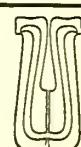
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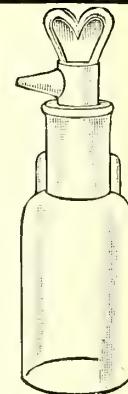
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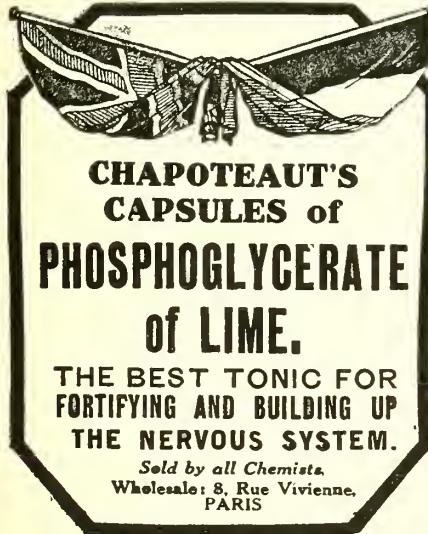
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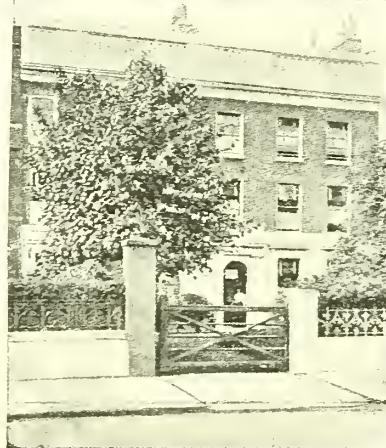
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September 8	... " January	10	10	0
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More Students have passed the Pharmaceutical Examinations from this College than from any other School or College.



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Barton, H. ... Warrington	Hopkins, L. ... Leighton Buzzard
Brown, P. J. ... Gillingham	Isaac, A. A. ... London
Burton, P. ... King William's Town	Lloyd-Jones, W. E. ... London
Champion, H. L. ... Durban	Lloyd, E. ... Clapham
Cohen, B. ... Spitalfields	Marshall, C. G. ... Newcastle-on-
Coverdale, C. H. ... York	Martin, C. L. ... Maryport [Tyne
Daniel, D. C. ... Carmarthen	Robinson, D. ... London
Durance, D. ... London	Thomas, M. I. ... Treorchy
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Six Postal Students were also successful.

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Burton, T. M. ... Sutton-on-Sea	Newell, W. C. H. ... London
Clarke, D. ... March	Oakes, C. C. ... Baildon
Cohen, J. ... Dublin	Page, F. C. ... Leicester
Eden, T. ... Workington	Pyle, W. B. ... Northmarston
Edrich, E. S. ... Thorpe Hamlet	Saw, M. ... Blackheath
Folkard, W. L. ... Eye	Sumption, H. H. ... Blackwood
Hancock, V. C. ... Risca	Wardle, R. M. ... Brixton
Kirby, E. M. ... Hanworth	Ward, E. ... Hendon
Kirkpatrick, M. ... Upton Manor	Wellington, J. P. ... Oakham
Lanspeary, L. ... Wellingborough	West, J. W. ... Leicester
McCombie, H. M. ... London	Wray, W. E. ... Great Grimsby

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N.B.—The next Term for the Apothecaries' Hall will commence on August 19.

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NEW COURSES OF STUDY commence on Sept 27 for the **Winter** term, and on Jan. 3 and April 1, 1916, for the **Spring** and **Summer** terms. :: **Evening Classes** reform on Oct. 4; **Fees from £1. 1. 0**

EXAMINATION RESULTS, Session 1915, Jan.-July. **Passes 36** (Majors 2, Minors 33, Apoth. Hall 1) representing over 80% of the presentation. *For all particulars, prospectus, etc., apply the Principal.*

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PHARMACEUTICAL EXAMINATIONS, April 1915. 24 London College Students Passed (Major 3). Constituting over one-fourth of the total Minor and Major pass for England and Wales.

," " **July 1915.** 26 London College Students Passed (Major 4). Constituting over one-third the total Major pass for England and Wales.

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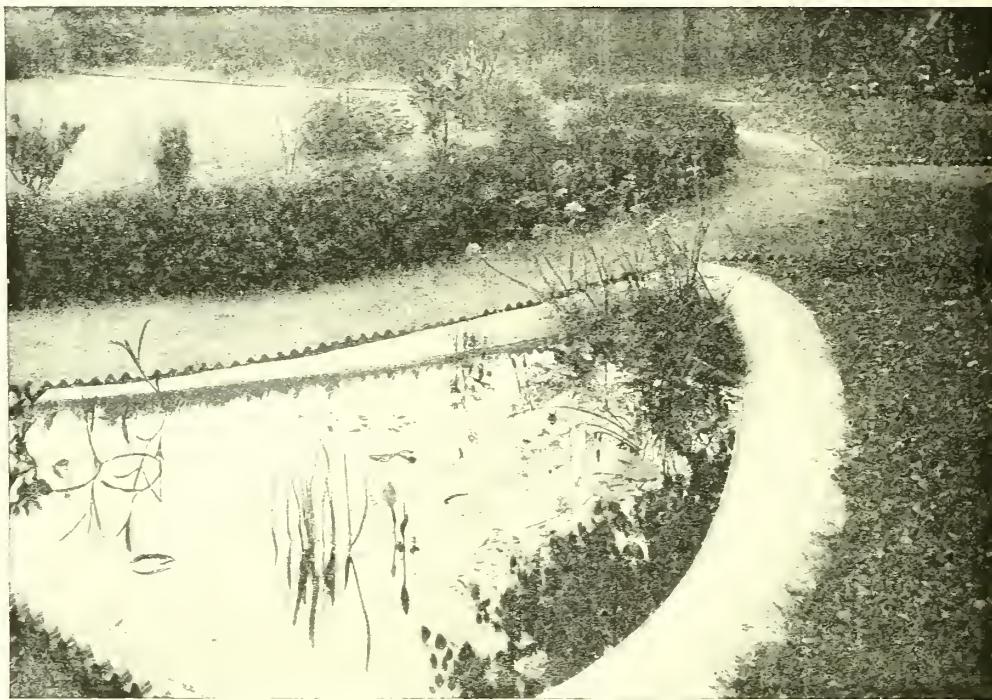
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One can late passed Final A.I.C. (Foods and Drugs Branch). The candidate took the whole of his instruction for Inter. and Final at the College.

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The **Wednesday Part-time Class** commences on September 1. The Classes for the **Major** Examination also commence on the above dates.

New Terms for the **Minor** and **Major** also begin about the first weeks of January and April.

The **Apothecaries' Hall Class** commences on August 23.

All intending Students and others are cordially invited to inspect the new premises of the College.

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No candidate will be admitted to the Examination in 1916 who is less than 20 years of age on July 1, 1916, or who exceeds 22 on January 1, 1916. An exception will be made in the case of Students who have joined His Majesty's Forces, those who were eligible in 1915 and because they were serving with the Colours did not compete, will be eligible in 1916.

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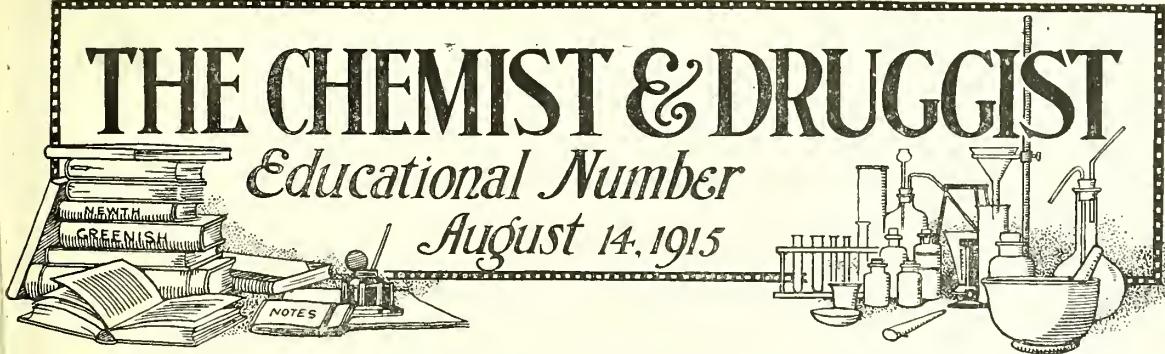
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Contents.

Vol. LXXXVII., No. 7 (Series No. 1855).

PAGE	PAGE		
Association Affairs	39	Educational (cont.) :	
Australasian News	37	Medicine	61
Births	38	Degrees	62
Business Changes	34	Diplomas	63
Companies Registered	47	Medical Schools	65
Correspondence	70	Dentistry	65
Subscribers' Symposium	71	Dental Schools	65
Legal Queries	71	Science	66
Miscellaneous Inquiries	72	Degrees	67
Cross of Cain	34	Diplomas	67
Deaths	38	Schools	67
Deed of Arrangement	47	Optical Diplomas	68
EDITORIAL ARTICLES :		Schools	69
Preliminary Examinations	44	French News	37
Medical Students and Materia Medica	45	Gazette	34
After One Year of War : The Manufacture of Fine Chemicals	45	German News <i>Col. Supp.</i>	
English News	35	Information Department	42
European War	33	Insurance Act Dispensing : Inquiry at Hull	40
EDUCATIONAL INFORMATION :		Local Reports	41
Introductory	51	Irish News	36
Pharmacy	52	Legal Reports	47
Registration	53	Marriages	38
Apprenticeship	52	Observations and Reflections	43
Minor Examination	53	Personalities	38
Major Examination	54	Poisonings	36
Colleges and Schools	54	Prescription Problem	39
Irish Qualifications	56	Prohibition of Exports <i>Col. Supp.</i>	
Apothecaries' Assistants	58	Retrospect	72
Degrees in Pharmacy	58	Scottish News	37
Books for Students	58	South African News <i>Col. Supp.</i>	
Minor Experiences	59	Trade-marks	70
Scholarships	60	Trade Notes	47
Dispenserships	60	Trade Report	48
Veterinary Surgery	66	Wills	38
		Woman in Pharmacy	69

Summary of Leading Matters.

The pages devoted to matters connected with Insurance dispensing are prefaced by a report of an inquiry at Hull to the continuance on the dispensing panel of the shops of Taylors' Drug Co., Ltd., in that town (p. 40).

Other items in this issue include a report on the death of a young woman in a Kentish Town drug-stores, which had been the subject of investigation at a coroner's inquest (p. 35); the trial of a chemist charged with embezzlement (p. 36); and the discovery of a solution for wound-sterilisation (p. 37).

Half the number of pages in this issue deal with information on educational matters. Pharmacy is naturally the chief subject, but we furnish also particulars of the educational requirements in medicine, dentistry, veterinary surgery, science, and optics (pp. 51 to 69). An editorial article is devoted to the question of Preliminary examinations, in which we show that the standard must constantly be adjusted to the standard of education in the country (p. 14).

European War.

A Year Ago To-day.

(*War News in "C. & D." August 15, 1914.*)

This section began with a quotation from the speech of the Chancellor of the Exchequer on the necessity of "keeping things going and working normally." The announcement was also made that a state of war existed between this country and Austria-Hungary as from midnight, August 12. A list of prohibited exports was given from the "London Gazette," and from the same publication we reprinted the Proclamations dealing with Trading with the Enemy and the "Moratorium." We also referred to the steps taken in Holland to prevent the pries of drugs being unduly inflated owing to the war, and to the appointment in this country of a Committee with the object of conserving the drug supply. Details of the process for the manufacture of antipyrin were given in an article which followed, and in an editorial we dealt with problems that had arisen from the state of war.

Pharmaceutical Roll of Honour.

Non sibi sed patria.—CICERO.

FORTY-SEVENTH LIST.

GIBSON, Gunner JOHN W. (son of Mr. George S. Gibson, chemist, West Hartlepool), Royal Field Artillery.

WATSON, Sergeant A., Morceainbe, R.A.M.C.

WILSON, WALTER J. (apprentice to Mr. Thomas Postlethwaite, Ph.C., Central Pharmacy, Southsea), Royal Engineers.

CAPTAIN STANLEY PRESTON, 1st Batt. Middlesex Regiment (D.C.O.), youngest son of Lieutenant-Colonel Alfred C. Preston, of Thos. Hodgkinson, Prestons & King, wholesale druggists, 262 Bishopsgate, London, E.C., has received a Staff appointment. Captain Preston has been till recently adjutant of the 1st Calcutta Rifles, commanded by Colonel the Hon. E. Griece, C.I.E. (of Smith, Stanistreet & Co., chemists and druggists, Calcutta).

Patents of Alien Enemies.

The Comptroller of Patents has issued a notice under the Patents, Designs, and Trade-marks (Temporary Rules) Acts, 1914, that in the event of the prescribed renewal-fees due in connection with patents in respect of which licences have been granted by the Board of Trade by virtue of the provisions of these Acts not being paid by the patentees, such fees may be paid by the licensees and the amount of such fees deducted from the royalties payable to the Public Trustee under the licence. Licensees should inform themselves as to the dates upon which such fees become payable, to avoid having to pay extension-fees also.

The Use of Gold.

In view of the importance of strengthening the gold reserves of the country for exchange purposes, the Treasury has instructed the Post Office and all public departments charged with the duty of making cash payments to use notes instead of gold coins whenever possible. The public generally are also requested, in the national interest, to

co-operate with the Treasury in this policy by: (1) Paying in gold to the Post Office and to the banks; (2) asking for payment of cheques in notes rather than gold; (3) using notes rather than gold for payment of wages and cash disbursements generally.

Notices as to Exports of Chemicals, etc.

DUTCH EAST INDIES.—According to a notice published in the "Handelsberichten" for July 22, the exportation of synthetic indigo from the Netherlands East Indies has been prohibited.

SWEDEN.—The Board of Trade are in receipt of telegraphic information from H.M. Minister at Stockholm to the effect that almonds (whether in the shell or not), bone meal and horn meal, chloride of lime, and compressed chlorine have been prohibited from exportation.—The Swedish Chamber of Commerce in London is in receipt of a cable from the Swedish Board of Trade, Stockholm, dated August 3, to the effect that drugs and medicines, and also saccharin and other artificial sweetening products, are now prohibited from export.

German and Swiss Dyes.

Reference was recently made in the *C. & D.* to a circular sent out by the German dye-makers to Swiss consumers threatening to cut off further supplies of dyes to Switzerland unless the Swiss makers refused to export their products to Great Britain. This brought a trenchant reply from the Swiss makers (*C. & D.*, July 24, p. 34). This reply has evidently troubled the German firms, for they have now issued a highly characteristic explanatory statement denying that they are treating Swiss buyers badly. The statement of the Swiss makers that, owing to Germany's refusal to allow the exportation of raw and intermediate coal-tar products, it would have been necessary to close the works if it had not been possible to arrange for supplies from England, and to a smaller extent from France, is much resented. It is said that Germany would have supplied raw material if the Swiss producers had agreed to give a guarantee that no Swiss colours should find their way to German enemy countries. Great emphasis is laid on the large amount of Swiss colours which continue to be exported to England, and it is made clear that this is seriously worrying German makers. Apparently it is felt that the previous circular went rather too far, as the present one concludes with a statement that German makers will continue to assist those Swiss dyers who remain true to them. The Swiss firms, in reply, point out quite firmly that it is impossible for them to refuse supplies to Germany's enemies, for the very good reason that there are no other markets of importance open to them, except the American. Mention is also made of the important fact that almost the entire output of Swiss colours, both for domestic and export markets, is now made from raw material obtained from Great Britain.

The Cross of Cain.

[Professor Dr. W. Nernst, Director of the Physico-Chemical Institute of the Berlin University, has been awarded the Iron Cross of the first class. This decoration is intended as a mark of honour to German chemical science, which has rendered such valuable services to its country both on the battlefield and in combating "the English starvation-war."—*C. & D.*, August 7, p. 41.]

In the Kaiserlich sight thou art good,
The esteem of the Junker thou earnst;
When the Teutonic rabble want food
And a saw-dusty loaf fits Our mood.
Thou canst fake it, ingénious Nernst.

In the Kaiserlich grace thou art high.
By the lesson of Kultur thou learnst:
For if Kaiserlich curs will not die,
Fighting fair, then thy chlorine we try:
Take the Poisoner's Cross, gallant Nernst.

Miscellaneous.

MUNITIONS INVENTIONS.—The Minister of Munitions has constituted a Munitions Inventions Branch of the Ministry, and has appointed as Comptroller Mr. E. W. Moir. The panel of scientists includes chemists and physicists.

THE "413" PATENT.—The application of the Société Anonyme les Établissements Poulen Frères, under the Patents, Designs, and Trade-marks (Temporary Rules) Act, for a licence to use Patent 17619 '97, belonging to the Farbwerke vormals Meister, Lucius & Brüning, has been refused.

A WAR SONG.—Mr. William Griffith, Mus.B., F.R.C.O., chemist and druggist, has written and set to music a patriotic song, entitled "March On." The words are inspiring, and the music is excellent. The song is published by the A. P. Publishing Society, 42 Vallance Road, Alexandra Park, London, N., price 1s. 6d.

DISSIPATING POISON-GASES.—Sir Hiram Maxim has designed a means of dissipating the poison-gases used in warfare by the Germans. It consists in throwing, by a

machine, inflammable bombs at a distance of 300 yards in front of the trenches. This produces a fire, the heat of which rapidly causes the heavy gases to rise and diffuse in the air.

COTTON AS CONTRABAND.—A meeting held at Queen's Hall London, on August 11 passed a resolution urging the Government to take steps to declare cotton contraband of war. Sir William Ramsay was one of the speakers. The enemy, he said, is expending propulsive ammunition at a rate corresponding to the consumption of 1,000 tons of bale cotton per day.

GERMAN FIRMS IN BRAZIL.—H.M. Consul-General at Rio reports that certain well-known German merchant firms in that city have been importing goods from the United Kingdom in names of certain of their employés who are of Brazilian nationality. The procedure adopted has been that orders have been placed direct with British export firms by the Brazilian employés. On arrival at Rio the goods have been cleared by the consignees and transferred by them to the German firms in question.

WEST AFRICAN TRADE.—The Secretary of State for the Colonies has appointed a Committee, presided over by M. A. D. Steel-Maitland, Parliamentary Under-Secretary of State for the Colonies, to consider and report upon the present condition and the prospects of the West African trade in palm-kernels and other edible and oil-producing nuts and seeds, and to make recommendations for the promotion, in the United Kingdom, of the industries dependent thereon. The Committee is an influential one, and includes Professor Wyndham R. Dunstan, C.M.G., Director of the Imperial Institute, and Mr. T. Worthington, Commercial Intelligence Branch of the Board of Trade.

PROFESSIONAL CHEMISTS AND THE WAR.—The President of the Chemical Society (Dr. A. Scott, F.R.S.) has issued the Fellows a further circular, stating that over 900 for have been received in response to the circular letter sent to Fellows on July 1 (*C. & D.*, July 10, p. 34), together with many letters and suggestions. In dealing with the Council will have the assistance of special Committees each of which will be formed by a kindred Society. The following Societies are co-operating: Royal Agricultural Society, Biochemical Society, Society of Chemical Industry, Society of Dyers and Colourists, Faraday Society, Institute of Chemistry, Institute of Metals, Institution of Mining and Metallurgy, Pharmaceutical Society, Physical Society, and the Society of Public Analysts. Each of these will nominate six experts, who, together with two members of the Council of the Chemical Society, will form a Committee to consider and report on matters referred to it by the Council. In addition to these special Committees, a General Committee is in course of formation which will consist of about twenty members, two being nominated by each of the co-operating Societies. The function of this General Committee will be to consider all matters of general policy with reference not merely to questions directly relating to the war, but to all matters on which it is desirable to have the opinion of a body thoroughly representative of every department of chemical science. Many of the suggestions received have been anticipated, while those presenting any novelty are still under consideration.

Business Changes.

Authenticated notes are inserted without charge if not in nature of advertisement, and subject to Editorial approval.

THE WILLIAM DRUG CO., LTD., Bombay, have opened offices at 107 Bishopsgate, London, E.C.

MR. ROBERT TOCHER, Ph.C., F.S.M.C., D.B.O.A., has acquired the old-established business of the late Mr. E. J. Cox, 53 High Street, Greenhithe, Kent.

DOMEIER & CO., 8 Harp Lane, London, E.C., announce that their senior partner, Mr. C. Twietmeyer, has retired. The business will be carried on under the old style by the remaining partners, Mr. Leopold Courtin and Mr. George Warner.

Gazette.

Bankruptcy Acts.

RECEIVING ORDER.

LAMB, A. W., Wolverley House, Albrighton, Salop, surgeon and physician.

ADJUDICATION.

PARSONS, C. O'CONNOR, Dovedale, Totley Brook Road, ²³ Sheffield, medical practitioner.

English and Welsh News.

Subscribers are invited to send to the Editor newspapers containing matters of trade interest. The items should be indicated.

General Medical Council.

A meeting of the Executive Committee was held on July 26 in London, Sir Donald MacAlister (President) in the chair. The Committee had before it correspondence from the Privy Council regarding the reciprocal recognition of medical certificates granted in the Province of Saskatchewan. An Order in Council under the Medical Act (1886) Amendment Act, 1905, has been made sanctioning reciprocity, and the Committee authorised the Registrar to accept for registration in the United Kingdom the licences of the College of Physicians and Surgeons of Saskatchewan, provided that the course of professional study occupies at least five years. Arrangements for reciprocity with the Province of Ontario were completed on a similar basis, but it was reported that nothing further has transpired in regard to reciprocity with Manitoba and Alberta. Steps to establish reciprocity with British Columbia are being taken. The correspondence with the Privy Council and the Pharmaceutical Society, giving Dr. Waldo's views on the strength of laudanum, was also read. The letter of the Secretary of the Pharmaceutical Society quoted the views of the Society as embodied in a recommendation of the Council (*C. & D.*, January 9, p. 43). It was left to the Pharmacopeia Committee to report upon the matter. The dental business considered by the Council included warm approval of an Ordinance to provide for the registration of dentists in Ceylon.

British Dental Association.

The annual meeting of the British Dental Association was held in London on July 24, Mr. W. Guy, F.R.C.S., L.D.S. (the President), in the chair. In his valedictory address, Mr. Guy spoke of the war as having knit together the nations in the bonds of a great and holy common purpose, and referred to the steps taken by the Association in solving the problem of dental treatment for soldiers. Seventy dentists were given commissions as temporary lieutenants, and early this year the War Office authorised all dental treatment necessary to render a non-commissioned officer or man fit for service in the field, and laid down a not ungenerous scale of payment to civilian dentists for this work. There are more dentists needed for the Army, and some of the work, said Mr. Guy, which is done by civilian dentists under the War Office authorisation is unsatisfactory, the main difficulty being the insertion of dentures too soon after extensive extractions. A minimum period of two months should be allowed between extraction operations and the construction of dentures. He advocated the formation of an Army Dental Corps. A vote of thanks to the retiring President was carried with acclamation. Mr. Guy, who was in his uniform as a captain of the Royal Army Medical Corps, then vacated the chair to Mr. W. H. Dolamore, the new President, who in his Presidential address dwelt on the importance to the nation of dental treatment, and also referred to the steps taken to tend to soldiers' teeth. The annual business meeting as held later in the day, and the annual report and accounts (*C. & D.*, July 24, p. 36) were adopted. Mr. Frank J. Pearce was re-elected Hon. Secretary of the Association.

Contracts for Drugs, etc.

Subjoined are particulars of contracts for drugs and allied products, which have been notified during the week.

Lewisham Guardians have been recommended to continue to present contracts for drugs, surgical appliances, dressings, and instruments till March 31, 1916.

Liddleton Health Committee.—Sanitas Co., Ltd., for infecting powder and fluid.

Birmingham.

Boots Cash Chemists, Ltd., have closed one of their Broad Street shops.

A local institution advertises for a "dispenser, with bacteriological experience." Fifty-two pounds per annum is offered.

Cadbury Bros., Ltd., have handed to the Lord Mayor and Lady Mayoress, for charitable purposes, 450/-, the proceeds of a sale of part of their surplus stock of zinc.

Amplifying the reference to Marshall Brothers' pharmacy which appeared in our last issue (p. 36), we have received the following note :

The elder brother, Mr. A. E. Marshall, served his apprenticeship with Mr. W. B. Evans, Moseley Road. The younger brother (Mr. Henry H. Marshall), the present owner of the business, was apprenticed to Mr. T. W. Chapman, Bristol Street, and was for some time assistant to Mr. Fredk. Smith, of Handsworth. After qualifying he was with Alfred Bird & Sons at their retail shop in Worcester Street. The Moseley business was opened by the elder brother, and the business which they at one time had at Sparkhill was opened by the younger, who afterwards took charge of the pharmacy at Moseley. The partnership existing between them was dissolved at the end of 1902, since which time the Moseley shop has been entirely carried on by the present proprietor, Mr. Henry H. Marshall.

Manchester.

The pharmacy recently occupied by Mr. Morten Dodge, Albert Square, Manchester, has been converted into a recruiting office by the 7th Manchester Regiment.

A striking window-display is to be seen in Market Street, Manchester, depicting the up-to-date style of medicinal supplies in tablet form, of a tonic nature, compared with the old style. A 16-oz. bottle of tonic with a medicine-glass and a handbag to carry same in is shown, and also a small bottle of tablets in the waistcoat-pocket (the waistcoat being shown with the supply of tablets in the pocket). Hundreds of people stop to inspect this window-display, which should mean many sales.

An appeal has been issued to the members of the Manchester and Salford Pharmaceutical Associations for further donations to defray the expenses connected with the upkeep of the Worsley Hospital Dispensary scheme. Up to the present time goods to the value of 2'0/- have been given by the local wholesale houses, and subscribers have contributed 113*l.* 10*s.* The expenses up to the end of June have reached 104*l.* 8*s.* 6*d.* The Treasurer has in hand a balance of 9*l.* 1*s.* 6*d.* The Committee has promised, if possible, to maintain the dispensary for another three months, and with this object in view further subscriptions are asked. It is hoped the appeal will receive a generous response.

Miscellaneous.

PHARMACISTS' TRAINING CORPS.—The first drill will take place on Sunday morning, August 15, in the courtyard of the Prudential Assurance Co.'s buildings, High Holborn (entrance in Brooke Street), London, at 10 A.M.

THE APOTHECARIES' HALL.—It is announced that the mill-house adjoining the Apothecaries' Hall, Water Lane, Blackfriars, London, E.C., is to be pulled down in order to widen the thoroughfare.

SCIENTIFIC RESEARCH COMMITTEE.—The appointment is gazetted of Sir Amherst Selby-Bigge to be Special Secretary to the Committee of the Privy Council for the organisation and development of scientific and industrial research. (See *C. & D.*, July 31, p. 141.)

A NARROW ESCAPE.—A big fire took place on August 7 in Liverpool. The premises involved were those of a large furniture-works in Fleet Street. These are situated just opposite the laboratories of Evans Sons Lescher & Webb, Ltd., and at one time it was feared that the fire would spread to these premises. Happily, this catastrophe was averted.

LONDON LEIPZIG FAIR.—"The Times" states that in the spring of 1917 a Palace of Industry will be opened as a permanent institution in London. A site of forty-four acres has been taken at Willesden Green, and upon this are to be erected buildings three times the size of Olympia. Admission to the Fair will be limited to traders, and each Fair is to last three weeks.

GLASS-TRADE DISPUTE.—The representatives of the National Flint Glass Makers' Union met Sir G. R. Askwith in London on August 10, in an endeavour to settle a dispute which has arisen in the trade. The men are demanding a 3*s.* advance, and have handed in notices to cease work. The towns affected include London, Manchester, Birmingham, Glasgow, Edinburgh, Warrington, and Stourbridge.

PARCELS FOR SWEDEN.—The Swedish Post Office announces that articles prohibited from exportation from Sweden will not be allowed to pass in postal packets in transit through Sweden. All parcels sent by post from the United Kingdom

to Russia and Persia are at present forwarded through Sweden; and parcels for those countries should, therefore, not contain articles prohibited from exportation from Sweden.

SHOPS ACT.—Owing to the large number of visitors to the huge military encampments in the town, Ripon City Council has granted to shopkeepers the exemption of holiday resorts in regard to the weekly half-day closing for four months from August 1.—Brighouse Tradesmen's Association has decided upon earlier closing of shops in the district as follows: Mondays, Wednesdays, and Thursdays, 7.30 p.m., instead of 8 p.m. as hitherto; Fridays, 9 p.m., as before; Saturdays, 9.30 p.m. The half-holiday is on Tuesday.

POISONING CASES.—Three of the eight deaths due to taking poisons reported during the week were suicidal cases. The poisons implicated were solution of ammonia, oxalic acid, and salt of lemon. Solution of ammonia, poisonous liniment, white oils, and spirit of salt, taken by misadventure, caused the deaths of four persons. A young man died at Hampstead, London, through taking an overdose of laudanum. At the inquest it was stated that deceased had obtained small quantities of laudanum, saying it was to be used to allay the pain of toothache, from forty-eight chemists in different parts of London. The law in regard to the sale of poisons was faithfully carried out in each case. A verdict of death by misadventure was returned.

A FATAL LEAD-PLASTER.—At an inquest held at West Hartlepool on August 6 on the body of Annie Herrington (26), the wife of a naval man, it was stated in evidence that deceased put a plaster on her breasts after weaning a baby. On August 5 she had a fit, and never recovered. Dr. English stated in evidence that two sorts of plasters were commonly used, with and without medical advice, for the purpose revealed in this case. One sort is belladonna-plaster, which is comparatively innocuous; the other contains lead, and might be highly dangerous, and had been used in this case. These plasters are not on the Poison Schedule, but steps had been taken to restrict their sale. The cause of death was acute lead-poisoning contracted from the plaster. The case was a rare one. The jury returned a verdict in accordance with the medical testimony, and recommended that steps should be taken to restrict the sale of such plasters.

DEATH IN A DRUG-STORE.—On August 10, Mr. P. Bryne, Deputy-Coroner for Central London, concluded an inquiry at the St. Pancras Coroner's Court concerning the death of Adelaide Oliver, aged twenty-three, whose death took place in a drug-store at Kentish Town. Deceased was *en cintre*, and was stated to have fainted and died on entering Tate's Drug-stores, 13 Prince of Wales Road. Dr. Bernard Henry Spilsbury, pathologist of St. Mary's Hospital and Home Office expert, who had made a *post-mortem* examination of the body, stated that he found internally an injury that must have been caused by some operation within a few minutes, or half an hour at the longest, before death. In his opinion death was due to syncope or heart-failure, from shock owing to the injection of some fluid into the body for the purpose of procuring abortion. George William Bowerman, the next witness, stated that he was the proprietor of Tate's Drug-stores. He was not a qualified chemist, but sold drugs. He had passed the Apothecaries' Hall examination. A young man named Allen came to the shop six weeks ago, and said that he wanted something to correct irregularity in a young woman. Witness made up a mixture and sold it to Allen. The deceased and Allen later on came to the shop, and she told him the mixture had done no good, and he made up another bottle, charging 4s. 6d. for it. He had no idea that she was pregnant, or he would not have supplied her with the mixture. On July 22 he was standing just inside the shop talking to Mr. Hodge, when the deceased entered. He noticed that she was looking very ill. He went round the counter to serve her, when she fell to the floor with a thud, and he thought she had fainted. He used restoratives, after which he ran and called in Dr. Alston, who said she was dead. William Hodge, a L.C.C. swimming-instructor, of 7 Carlton Road, Kentish Town, who was in the shop at the time, corroborated the last witness. Thomas Robert Allen, who procured medicine for deceased, was also called. The jury returned a verdict of wilful murder against some person or persons unknown.

CHEMIST CHARGED.—At the London Sessions on August 11, George Henry Russell, 49, chemist and druggist, who was employed as manager by Mrs. Jane Starkie, of 126 The Strand, at her shop in Grand Hotel Buildings, Charing Cross, pleaded not guilty to having embezzled 231. 10s. since September last, but admitted having, with intent to defraud, omitted certain particulars from the cash-sheet,

and with having mutilated a cash-sheet. Mr. Huntly Jenkins, counsel for the prosecutrix, accepted the plea, and pointed out that prosecutrix had no vindictive feelings in the matter. Mr. George Elliott, K.C., who appeared for the defence, said this is one of those common cases where men placed themselves in a thoroughly false position. His client was born at Burton-on-Trent and was educated at good schools, distinguishing himself in science and mathematics. He held very high qualifications. In 1898 he came to London and was duly qualified. He entered the late Mr. Starkie's service in that year, and remained with him until his death in 1911. There was no suggestion of bad treatment, but the fact was that for the last few years of his life Mr. Starkie was enabled to live in comfort through the defendant taking the whole of the undertaking on to his shoulders. In 1911, when another manager left, the defendant carried on the two shops, and the consequence was that, in his desire to wind-up the deceased's affairs satisfactorily and to dispose of an enormous stock which had accumulated, some of which was out of fashion, he took a much more prominent part than an ordinary servant and fell by degrees into a happy-go-lucky style of receiving money from one source and paying it out to another. There was no doubt that he did technically act contrary to the ordinary arrangements between mistress and servant, and it could not be suggested that he was legally entitled to do it. Had the case been fought out it would have been necessary to investigate accounts, going back many years to ascertain the exact balance due to the prosecutrix. He (counsel) had felt bound to advise that he had been guilty of an error of judgment and that his action could not be legally defended. Mr. Elliott appealed to the Court for leniency. Mr. Allan Lawrie (Deputy-Chairman), addressing the defendant, said: "You ought to be extremely grateful to Mrs. Starkie for not pressing the charge. I am quite ready to believe that this system began with carelessness, but latterly it undoubtedly became worse than mere carelessness. Taking all these things into consideration, and remembering that for a man of your attainments you have already suffered considerably, I think the justice of the case will be met, and I shall be doing my duty to the public, if I bind you over under the Probation Act to be of good behaviour for twelve months." Mr. Huntly Jenkins mentioned that he had arranged with Mr. Elliott that the defendant should pay twenty guineas towards the cost of the prosecution, and that any articles found at his house, which Mrs. Starkie might identify, should be handed over to her.

Irish News.

Subscribers are invited to send to the Editor newspapers containing matters of trade interest. The items should be indicated.

Brevities.

Sir Wm. Baxter has been appointed a Deputy-Lieutenant for the co. Derry.

The Police Committee of Belfast Corporation has authorised the Town Clerk to issue licences under the Poisons and Pharmacy Act, 1908, to Mr. Frank E. Smith, seedsman and florist, 15 and 17 High Street, and to Mr. Arthur S. Richie, 51/53 High Street.

On August 7 a horse attached to a four-wheeled dray, belonging to Mr. Houston Lancashire, Ph.C., Church Street, Ballymena, while being turned in Broughshane Street, became restive, owing to the front part of the vehicle becoming locked in some way, and the animal plunged into the window of a confectioner's shop, completely shattering the plate glass. The horse then fell on the concrete footpath, and when released from the dray was found to be badly cut about the head and legs. The driver was uninjured.

At Bawnboy Board of Guardians last week, a letter was read from the Local Government Board refusing to sanction recoupment on expenditure for medical and surgical appliances, owing to the Guardians having accepted a tender which was not the lowest received by them. After much discussion it was agreed "That having regard to the decision of the Local Government Board, we hereby cancel the contract with Fannin & Co and that further supplies be ordered from O'Connor Sons; and that in view of the existing circumstances we request the Local Government Board to sanction recoupment on the supplies ordered from Fannin & Co."

Scottish News.

Subscribers are invited to send to the Editor newspapers containing matters of trade interest. The items should be indicated.

Dundee.

In view of the publication of the *C. & D.* Educational Number, it is of interest to note that in "Jack's Reference Book," under the heading of "Pharmacy as a Profession," the *C. & D.* Educational Number is referred to as "the authority."

A copy of the British Pharmacopœia, 1914, has been added to the Reference Library in Albert Square, and may be consulted during the usual hours. It will be found on one of the book-stands in the centre of the floor from which readers help themselves.

There has been a general falling-off of prescriptions, both private and Insurance, for some weeks past. This is due to the open weather. Several chemists are now on holiday in preparation for the coming winter. Instructions have been issued to staffs as to the filling-up of the National Registration forms on the lines of the *C. & D.* notes.

Edinburgh.

An exhibition in connection with the campaign against flies is at present being held in Edinburgh, and has attracted many visitors, who display a keen and intelligent interest in the whole question. A skilled demonstrator is constantly in attendance to explain the exhibits and to give additional information to those who ask for it. A series of popular lectures and demonstrations will be given in connection with the exhibition.

Mr. James Dick, Hon. Secretary of the Edinburgh District Chemists' Trade Association, has notified members that a large majority of chemists have expressed approval of the proposed midday closing, and that the Committee therefore feels justified in recommending a general midday closing for the meal-hour. From reports received from chemists who have already closed, the Committee is assured that the general public is sympathetic and is adapting itself to the altered conditions.

Fife.

In a diary of Leslie, printed in a Fifeshire newspaper, appears the following: "August 13, 1874. Property of Mr. Brown, chemist, offered for sale; afterwards secured by James Black for 46/-."

It has been stated in the "Fifeshire Advertiser" that one-fifth of the panel doctors are now serving with the forces. We are informed that nearly 90 per cent. of panel chemists' assistants and apprentices must have joined the Colours. In two, at least, of the Fifeshire towns every assistant has enlisted, leaving only proprietors or branch managers and girls to do the work.

Glasgow and the West.

Homeopathic medicines are in increasing demand in Glasgow as a result of recent efforts to popularise this form of treatment. The portability and ready dosage of the homeopathic medicines have appealed specially to soldiers. Mr. M. F. Thompson, chemist and druggist, Gordon Street, is a pioneer in homeopathy, and caters for its devotees.

Many chemists have added to their business, for the duration of the war, at all events, a "Continental postal anch," through offering to wrap up parcels which customers desire to send to the troops. There are always ot-powder, thirst-quenchers, antiseptics, and the like intended for enclosure, so that the work is not without numeration, while the goodwill is of a lasting nature.

An important suggestion has been made to the Glasgow Chamber of Commerce and to the Secretary for Scotland Lieutenant-Colonel Martin Martin, Upper Ostaggio, Isle of Skye, to the effect that steps should be taken immediately to initiate a scheme for utilising the native deer so long used in the Highlands and Islands, and thereby substitute a British for a German industry, thus assisting to sustain the population in the Highlands of Scotland.

French News.

(From the "C. & D." Paris Correspondent.)

THE MANUFACTURE OF FINE CHEMICALS.—The French Ministry of Commerce has established in the Paris School of Pharmacy a department for the study of questions of chemical-manufacture, with special reference to the war. The director is Professor Béhal.

POSTAGE TO ENGLAND.—The Postal and Telegraphic Commission of the French Chamber on August 6 adopted a proposal to reduce the postage of letters to England to 10 centimes (one penny). If the proposal is legally sanctioned in France it is probable that the British Government will reduce the postage from England to France. It is understood that an agreement to reduce the present letter-rate can be entered into between the Allied Governments without violating the International Postal Convention.

SURGICAL ANTISEPTIC.—At the Academy of Sciences last week Professor Landouzy gave particulars of a new hypochlorite solution which has been devised by Dr. Alexis Carrel and Dr. Henry Dakin at the Compiègne Military Hospital. The solution, which is made by adding boric acid and calcium carbonate to solution of bleaching-powder, has been tried with great success. Applied to badly infected wounds, the result was that in eight days the whole aspect was changed in a wonderful manner. It is considered that gangrene can be prevented by the use of this liquid, and that the problem of infection of wounds has been solved. [Writing to "The Times," Professor J. B. Cohen, head of the Organic Chemistry Department of the Leeds University, states that Dr. Dakin worked out the process in the Leeds University Laboratories under the auspices of, and with financial assistance from, the Royal Medical Research Committee. The Department of Pathology of the University of Edinburgh seems also to have been working on the same lines. It will be remembered that in the Summer Number (July 31, p. 144) we published a note from the "British Medical Journal" regarding Eusol, which is a solution of bleaching-powder neutralised with boric acid.—ED.]

Australasian News.

"The Chemist and Druggist" is supplied weekly to all the members of eight Chemists' Societies in Australia and New Zealand.

New South Wales.

THE TITLE "ASPIRIN."—Pharmaceutical Defence, Ltd., at its meeting in May, made a definite recommendation that pharmacists should discourage the use of the word "aspirin" as much as possible and use labels with some other trade-word. It was considered that if this is not done the word "aspirin" will be as largely used after the war as it is at present, with the possibility that when German rights are restored a lucrative business will accrue by reason of pharmacists keeping the name before the public. The word "aspirin" is a trade-mark registered in the Commonwealth, and the proceedings taken by the British Board of Trade do not affect the position in Australia.

Queensland.

FISH MYSTERY.—There is a large business between Norway and Queensland in tinned fish. Lately a somewhat mysterious change in the condition of the fish has led to the rejection of very large consignments. The tins, on opening, are found to evolve ammoniacal vapours, and the fish to be soft and uneatable. Some tins are badly "blown," and contain carbon dioxide, etc., under pressure. Efforts are being made to ascertain the cause of the trouble, which is a serious matter for the Norwegian exporters.

WAR EFFECT.—Writing from Brisbane, a correspondent states that the Dardanelles fighting has thoroughly aroused the Australian spirit, friends of the soldiers receiving inspiring letters from the "boys" in Gallipoli. The times are, of course, a bit trying, but everybody is doing his bit—men supplying money, women knitting, etc. There have been Red Cross Day, Rose Day, Belgian Day, Alexandra Day, Wounded Day, etc., when, for patriotic purposes, young ladies in the streets charm money from one's purse which, however, no one grudges.

Births.

Authenticated notices are inserted without charge.

ASHTON.—At "Clover Dene," Furlong Road, Gloucester, on August 5, the wife of T. B. Ashton, Ph.C., of a daughter.

BRYANT.—On August 8, the wife of E. G. Bryant, Ph.C., F.C.S., of the Northern College of Pharmacy, Manchester, of a son.

Marriages.

Authenticated notices are inserted without charge.

BAILEY—MCNAIR.—At Ashton-under-Lyne, on August 9, John Bailey, chemist and druggist, son of Mr. and Mrs. James Bailey, to Agnes Frances, daughter of Mr. and Mrs. W. L. McNair.

ESLING—WESTMORELAND.—At St. Mary's Parish Church, Chatham, on August 4, by the Rev. W. D. Driver, Vicar of Gillingham, Kent, assisted by the Rev. G. Heslop and the Rev. R. Bristow, Fred Esling, son of Mr. E. Esling, of Beccles, to Mabel Phyllis, youngest daughter of Mr. W. H. Westmoreland, pharmacist, Chatham.

RAWLINSON—PROSSER.—At Walkden, on August 4, W. Rawlinson, Little Hulton, to Gladys, daughter of the late Mr. J. A. Prosser, chemist and druggist, Walkden.

ROWLEY—HUNTER.—At St. Luke's Church, Cannock, on August 2, Frank Elsor Rowley, son of the late Mr. John Rowley, chemist and druggist, Willenhall, to Elizabeth Alice, second daughter of Mr. Jonathan Hunter, Leacroft House, Cannock.

Silver Wedding.

WESTMORELAND—OSBORNE.—At Hythe Parish Church, on August 4, 1890, by the Rev. G. Hall, William Henry Westmoreland, chemist and druggist, 7 St. Helen's Terrace, North Kensington, W., eldest son of Mr. W. C. Westmoreland, Salisbury, to Catherine Mabel, youngest daughter of the late Mr. W. Osborne, of Park Farm, Acrise, Kent.

Deaths.

Authenticated notices are inserted without charge.

BARTON.—At Westcliff-on-Sea, on July 23, Mr. William Barton, chemist and druggist, aged sixty-four.

BUTTRUM.—Suddenly, at Harrington House, Shepherd's Bush, London, W., on August 4, Mr. Edward B. Buttrum. Mr. Buttrum was for over twenty years Eastern Counties representative of Smith & Sons, Norwich, and for several years travelled for T. Morson & Son, London. Latterly he was dispenser with Mr. Robert R. Pratt, chemist and druggist, 94 Canterbury Road, London, N.W.

CLAYTON.—At 53 Norfolk Road, Sheffield, on August 6, Mr. William Clayton, chemist and druggist, aged eighty-seven. Mr. Clayton was born at Stainborough, near Barnsley, and served his apprenticeship at Rotherham, going to Sheffield in 1848 as assistant to the late Mr. Hill, of West Street. Later he commenced business in the Wicker, and in 1856 was joined in partnership by the late Mr. George Ellinor, who afterwards retired. Mr. Clayton was the oldest pharmacist in the city. He retired from business several years ago.

CORCORAN.—At Bexhill, on August 4, Mr. Bryan Corcoran, 31 Mark Lane, London, E.C., aged seventy-two. Mr. Corcoran was a well-known chemical engineer and a familiar figure at the meetings of the London Section of the Society of Chemical Industry, of which Society he had been a member for many years. He was a member of the City of London Corporation for the Tower Ward.

JONES.—Suddenly, at 53 Mill Lane, Churchtown, Southport, on August 3, Mr. Charles Jones, Ph.C., late of 22 Middleton Road, Roxton, Oldham.

RANCE.—At 15 Beulah Road East, Thornton Heath, on August 7, Miss Emily Rance, chemist and druggist, fourth daughter of the late Edward Rance, London and Pietermaritzburg, aged forty-seven. Miss Rance passed the Minor in 1912.

SINCLAIR.—At Whithorn, Wigtonshire, recently, Mr. James Sinclair, chemist and druggist, formerly of Ellesmere, Salop, aged sixty-seven. Mr. Sinclair was a native of Dumfries, where his father was in business as a chemist, and under whom he was trained. In 1874 he acquired a pharmacy at Ellesmere, which he conducted for thirty-three years, retiring to reside at Dumfries eight years ago. He was a Town Councillor and a Magistrate of Dumfries.

SUCKLING.—At Linton, Cheshire, on August 3, Mr. Thomas Tannar Suckling, chemist and druggist, aged sixty-eight.

Died of Wounds.

DEVITT.—In Flanders, on July 3, Second-Lieutenant Guy Francis Ormond Devitt, 7th Battalion Rifle Brigade, youngest son of Mr. Andrew Devitt (of Lewis & Peat, 6 Mincing Lane, London, E.C.) and Mrs. Devitt, Herontye, East Grinstead, aged twenty-three.

Personalities.

Authenticated notes are inserted without charge if not in the nature of advertisement, and subject to Editorial approval.

MR. H. J. TURNBULL, chemist and druggist, Sunderland, has attained his jubilee as a Freemason, and on August 10 was presented by the members of the St. John's Lodge with his portrait. Mr. Turnbull was Mayor of the Borough from 1902 to 1906.

CERTIFICATES OF NATURALISATION have been granted to the following: A. Chodak, 3 Fingal Place, Edinburgh (Russian), student of medicine; N. Gelbertowich (known as N. Gilbert), 5 Shepperton Road, Islington, London, N. (Russian), perfumer; M. M. Makalua, 37 Pevensey Road, St. Leonards-on-Sea (American), medical man.

The gold medal of the Company of Dyers has been awarded to Professor Arthur C. Green, F.R.S., Professor of Tinctorial Chemistry in the University of Leeds, and to Mr. W. Johnson, M.Sc., a research student of the University of Leeds, for research-work in connection with the art of dyeing. The special research which was the occasion of the award was an investigation into the constitution of aniline black.

MISS DORIS GREGORY, this year's Fairchild Scholar, received her education at the North London Collegiate School for Girls, having been previously to College Villas Kindergarten at Hampstead. While at the North London she took the Junior London examination, gaining distinctions in physics, and later matriculated, taking both chemistry and Latin. On leaving school she went as a pupil to Miss Buchanan and Miss Heywood at Gordon Hall, London, W.C. While with them she also received instruction from Mrs. Stevenson (Miss Gertrude Wren), and later went to Miss Maughan at the Mildmay Medical Mission. Here Miss Gregory received her introduction to hospital dispensing. Last summer was filled up with *locum* work, dispensing for doctors and at the London Medical Mission a Endell Street. Then for a few months she was stock keeper and assistant-dispenser to Hunt & Co. at Winchester after which she returned to Miss Buchanan at her business at Clapham Common—Deane & Co. (Buchanan, Ltd.)—where she is now working under Miss Borrowman.



MISS GREGORY.

Wills.

MR. CHARLES BEEFIDGE, Albert Street, Northampton, druggist, who died on March 27, left estate valued at £3,789. 12s. 4d. gross.

MR. THOMAS BEDFORD, chemist and druggist, Montpelie Villa, Staincross, Barnsley, who died on February 10, left estate valued at £1,355. 16s. 4d. gross.

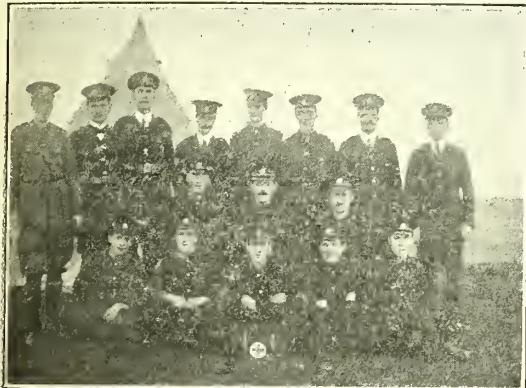
MR. ALFRED ADOLPHUS MANBRE, Bromborough, Chester, at Blaekstock Street, Liverpool, saccharin-manufacturer, who died on April 27, left estate valued at £14,033. 1s. 5d. gross, with net personality £13,597. 9s. 3d.

CAPTAIN ALEXANDER FINDLATER TODD, Firthorpe, Ascot, director of Findlater, Mackie, Todd & Co., Ltd., who died on April 21 from wounds received in action at Hill 6, left unsettled property valued at £15,816.

MR. JAMES CROSBY ROBSON, J.P., Ph.C., 37 Lintho Road, Middlesbrough, who died on June 16, left estate valued at £10,364. 15s. 10d. gross. Probate of his will has been granted to his widow, Mrs. Ellen Robson. The Linthorpe Coatham, and Mr. Henry Frankland, Linthorpe, Middlesbrough. The testator left all of his property to his wife for life, with remainder to his children.

Association Affairs.

Manchester.—The Manchester Chemists' Assistants' Association Red Cross Voluntary Aid Detachment has now been registered by the War Office as East Lancs, No. 49. In response to a circular issued some time ago, a sum of about 30*l.* was collected to assist in providing uniforms and stretchers and to form a fund which, together with



From left to right: Top row: Price (quartermaster), Grier (commandant), Topless (section leader), Kirby (pharmacist), Butt, J. Rowlatt, Yates (section leader), Fullerton (section leader). Middle row: Gresty, Jackson, R. Rowlatt. Bottom row: Moss, Rollings, Nelson, Howarth, W. Rowlatt.

members' subscriptions, will be available for further developments. Uniforms have now been issued, and in addition the detachment possesses a surgical haversack, six stretchers, one each of the latter having been presented by Mrs. Kirkby, of Heaton Moor; Mr. W. Lane, of J. Woolley, Sons & Co., Ltd.; Mr. R. Salthouse, of Wild & Salthouse; and Kerfoot & Co. The Committee received generous donations from Mr. George S. Woolley and Mr. Hermann Woolley. On August Bank-holiday week-end twenty members of the detachment formed a camp on Ludworth Moor, near Marple, under the direction of Quartermaster A. Price. The weather, though unsettled, did not interfere with the programme, which began at 6.30 A.M. with a hasty toilet at a field trough, followed by coffee and biscuits and a route-march or an hour's physical drill before breakfast, camp instructions in the forenoon and afternoon, with the evening free after tea. The only regret felt by the members was that the camp could not have been extended to a full week. The detachment has now completed courses of instruction in first-aid and sick-nursing and taken the examinations with credit. The course in hygiene and sanitation will begin in September, and all chemists' assistants and others interested are cordially invited to join. Drill in the open air, with instruction in bandaging and stretcher-work, is given every Wednesday evening at the Medical School (Coupland Street entrance) from 7 to 9.30. It is possible that a course in water-analysis and bacteriology may also be arranged during the coming winter to supplement the hygiene and sanitation course.

Middlesbrough.—The annual meeting of the Middlesbrough Chemists' Association was held on August 5. The treasurer's report showed an increased financial balance, ratification was expressed at the interest taken in the asses held in connection with the St. John's Ambulance Association. At the recent examination all the chemists participating were successful. The election of officers for the ensuing year took place as follows: *President*, Mr. W. Plowman; *Vice-President*, Mr. A. C. Gaddes; *Secretary*, Mr. J. C. Thompson; *Treasurers*, Messrs. C. S. Linton and G. L. Robinson; *Auditor*, Mr. A. W. Harrison; *Executive Committee*, Messrs. Bennison, Brackenbury, Iris, and Stubbs. The meeting terminated with a discussion of the increased prices of drugs. Action was deferred until September, when, it is hoped, a representative meeting will be possible.

Nottingham.—An extraordinary general meeting of the Nottingham Pharmaceutical Association, called to consider a circular issued by the Nottingham Insurance Committee concerning the settlement of accounts for 1913-14, was held at

the Flying Horse Hotel on August 4. In the absence of the President and Vice-President the chair was taken by Mr. A. Middleton. After an animated discussion the following resolutions were passed:

I. This meeting regrets that the Commissioners feel compelled to so heavily discount chemists' accounts, as by so doing the remuneration is quite inadequate for the services rendered, but would advise chemists to accept the offer subject to resolution No. 2 being sent to the Commissioners, the Nottingham Insurance Committee, and the Pharmaceutical Society.

II. This meeting of the panel chemists of Nottingham, while recognising that the Commissioners are within the letter of the law in discounting chemists' accounts, would respectfully point out (a) that the present heavy discount falls with great severity on chemists in working-class districts, who have made considerable sacrifice of their usual leisure hours in order to ensure effective working of the Act; (b) that the causes of the deficiency are beyond the control of the chemist, who must supply what the doctor prescribes. This meeting would therefore ask that any surplus on the Drug Fund in succeeding years should be devoted to paying the deficiency on the Fund during the first three years' working of the Act, and until that deficiency is paid the whole of the floating sixpence should be applied to the Drug Fund. This meeting is further of opinion that the principles on which the present Tariff is based form the minimum on which the work can be efficiently done, and that payment of at least 90 per cent. of the preceding month's bill should be made not later than the 15th of each month, and the balance—after adjustment—within three months of the end of the year, without discount.

Prescription Problem.

THE prescription given in our issue of July 17 was not a difficult one as problems go, and it provoked a good response. The prescription was written by a Belgian physician, and the correct rendering is as follows:

R. Aq. destil.	...	...	...	125 gram
Antipyrin.	...	...	...	1.60 gram
Syr. codein.	...	...	...	20 gram
Syr. tolu.	...	...	...	20 gram

15 fevrier 15.

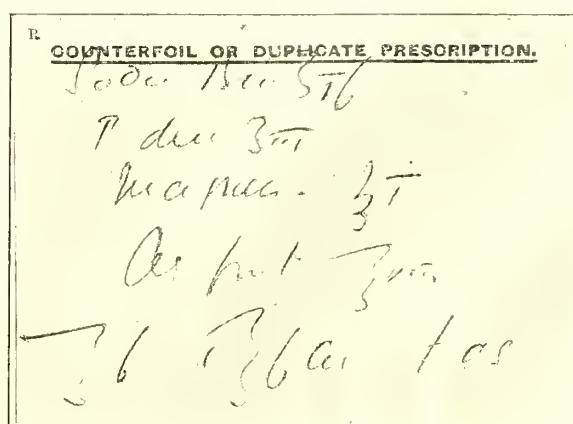
A number of competitors rendered the ingredients and quantities of the prescription correctly, but the date proved a stumbling-block to many, the absence of directions probably contributing to this. Several gave the word "gram" as "grammes." We received eighteen correct transcriptions, and we accordingly award prizes to those sending the earliest correct results from the various parts of the country. A copy of "The Chemists' Dictionary of Synonyms," "The Chemists' Dictionary of Medical Terms," or of "Provincial Hospital Pharmacopoeia" will accordingly be sent to each of the following if they will communicate their choice to the Editor:

ALEXANDER M. McMANNES, c/o Mr. Charles Coutts, 26 Broad Street, Aberdeen.

MR. A. MORTIMER, 9 Leeds Road, Harrogate.

MR. G. A. H. SHEELAY, c/o R. H. Cooper & Co., 20 Royal Exchange, London, E.C.

The following is the prescription forming the subject of the next competition. Postcard solutions should be posted to us not later than Saturday, August 14. Prizes will be awarded at the discretion of the Editor, and in case of close competition time of posting will be taken into account.



Insurance Act Dispensing.

A Record of matters concerning Chemists' interests in the National Health Insurance Acts.

Inquiry at Hull.

The Insurance Commissioners held an inquiry at Hull on August 1st into representations by the Insurance Committee that the continuance of Taylors' Drug Co., Ltd., on the list of persons supplying drugs, etc., to insured persons was prejudicial. The inquiry took place at the Métropole, West Street, and on the Committee were the following: Mr. Fischer Williams (barrister). Mr. Smith (of the Bradford Insurance Committee), and Mr. Rymer Young (Warrington), a member of the Council of the Pharmaceutical Society. Mr. John Lewenstein, Clerk to the Hull Insurance Committee, appeared as solicitor on behalf of the Committee, and was accompanied by Mr. H. Stonehouse. Mr. Glyn-Jones, M.P., appeared on behalf of Taylors' Drug Co., Ltd.

Mr. Lewenstein said there were 100,000 persons entitled to receive Medical Benefit in Hull under the National Insurance Act, and Taylors' Drug Co., Ltd., had contracted to supply drugs and appliances. By this agreement the company undertook to provide drugs as ordered by the doctor, to see that all drugs and appliances were of good quality, and that all dispensing is done under the direct supervision of a duly registered and qualified chemist or of persons possessing specified qualifications. The patients had suffered through the action of the company, and the Committee had been prejudiced financially. There are eight shops belonging to Taylors' Drug Co., Ltd., within the area over which the Committee had control. These shops were all on the panel, and all supplied medicines under the Act. Five complaints had been received up to March 26th, and as a result of inquiries made by the Committee it was decided to make representations that it was prejudicial to the insured persons to allow Taylors' Drug Co., Ltd., to continue on the panel.

Mr. Lewenstein, continuing, said there were six cases to be inquired into. The first, in which a calico bandage was supplied in place of an open wove one, took place on August 8, 1913, at the Anlaby Road shop. A second prescription had to be obtained and taken to another chemist. The company had admitted their error and expressed regret when their attention was called to the matter. The second case was at the Market Place store. Oiled cotton had been ordered, and as it was not on the list the company, instead of refusing to supply it, supplied oiled paper. In the third case a prescription was presented at the Anlaby Road shop on April 15 for an ointment. A wrong ointment was supplied in a box without a label, and the cure was delayed in consequence. The ointment ordered was in the British Pharmacopœia, and the one supplied was not. He contended that a qualified chemist would not have made such a mistake. An assistant was dismissed, and this showed that Taylors' Drug Co., Ltd., did not regard the mistake as trifling. The fourth case occurred on March 27. A belladonna-plaster was prescribed, and supplied untrimmed. Negligence was admitted in a letter received from the company. In the fifth case 8 oz. of a medicine was supplied instead of 12 oz., but 12 oz. was charged for. It was these five cases which led to the Committee deciding to make the representations referred to. The sixth case was a similar one to the fifth.

Mr. Lewenstein said there was reason to believe that steps had been taken to secure the withdrawal of these proceedings. The chemists who had promised to come as witnesses had been frightened to come forward to give evidence. Any attempt to prevent the inquiry was likely to interfere with public policy.

The Chairman said that if this were true it was so serious that it should form the subject of proceedings in another court.

Geo. Herbert Greensides, checker of prescriptions for the Hull Committee, gave evidence first. He said that in the oiled-cotton case oiled silk would have been the nearest article to that required. It would have cost 1½d., and the paper cost ½d.

Cross-examined by Mr. Glyn-Jones, he said that he had been ten or twelve years a chemist's assistant, and had been a dispenser in a women's hospital. His qualification was his twenty years' experience. He considered that in the third case the fault lay in the indefinite order of the doctor, who put "Ung. salicyl." in place of "Ung. ac. salicyl." In the case of the belladonna-plaster it was in such a condition that it would not adhere to the skin.

Geo. Barker, John Clayton, and John Robert Jacklin, patients to whom the drugs were supplied, were called. The last witness said he did not write the letter of complaint, although it embodied his views.

Mr. Lewenstein admitted that Mr. Greensides wrote the letter.

The Chairman said it would have been better if that had been stated before.

Another patient, named W. H. Burrill, was also called regarding the belladonna-plaster, and Wm. C. Shaw gave evidence as to receiving an 8-oz. bottle of medicine instead of 12 oz.

Mr. H. Stonehouse, J.P., Chairman of the Sanatorium Medical Service Committee and of the Pharmaceutical Service Sub-Committee, the next witness, said the cases were laid before him in accordance with the provisions of the Medical Benefit Regulations. He had been asked to use his influence to get these proceedings withdrawn. He did not think each offence was serious enough to warrant shops being struck off the list, but it was the aggregate which they took into account. Out of ten complaints against chemists, seven were against this company.

The Chairman said that the remarks about the witnesses being approached by Taylors' Drug Co., Ltd., were trivial, for they had only done what was right and necessary to the proper conducting of the inquiry.

This concluded Mr. Lewenstein's case.

For the defence, Herbert Chas. Roberts, chemist and druggist, and a director of Taylors' Drug Co., Ltd., and superintendent of the company, said they had about a hundred branches, and none without a qualified manager. The company had contracts with thirty-one Committees, and about a dozen of their managers had been elected on Pharmaceutical Committees. They had eight shops in Hull, and had dispensed in Hull 33,354 prescriptions up to June 30. With regard to the six complaints, they were (with the exception of the ointment case, perhaps) piffle. Much more ung. meth. salicyl. is used than of ung. ac. salicyl. He thought a calico bandage was better and stronger than the one required. The belladonna plaster was purchased from Mathers, of Manchester, the best firm in England for the manufacture of such articles. With regard to the 8-oz. bottle, no bottles of such a inferior quality as those produced were sent from their headquarters at Leeds.

Mr. Smith (one of the Inquiry Committee) asked whether they had dismissed an assistant if the complaint was "piffle." How would it be if every chemist in Hull gave 8 oz. for 12 oz.?

Mr. Glyn-Jones expressed his surprise at the attitude taken against that great company. He was by no means sure that if the ruling were against them the 100 shop would not have to be removed from the panel. Mr. Stonehouse himself had admitted that he was not in favor of the firm being struck off for these complaints individually. The bandage case was childish, and in the ointment case the real culprit was the doctor. He (Mr. Glyn-Jones) complained that these proceedings should have been brought forward in a time of national stress, when a complaint like this could do so much damage to the company. He could not conceive how a public official in Mr. Lewenstein's position could advise his Committee to bring about such an inquiry. He resented the suggestion that anyone had tried to interfere with Mr. Lewenstein's witnesses. This was not a criminal court, and Mr. Lewenstein ought to have assisted the Committee to clear up the difficulty about the letter referred to by the witness Jacklin. It had been suggested that Taylors had tried to interfere with the course of justice. He thought that it was a striking thing that the Pharmaceutical Committee should have asked that the inquiry should not be held, because they had learned since that it was a cruel thing to have an inquiry. It was an honour to the Pharmaceutical Committee to have come forward in that way. There was a serious flaw in the Act, and he could not ask for costs. It was his duty to call attention to the gross abuse and persecution which had occurred.

Replying to Mr. Smith, one of the Inquiry Committee, Mr. Lewenstein said they had not felt justified in going to the expense of calling the doctors as witnesses. Lewenstein, continuing, said they had acted merely as guardians of insured persons, and not with any bias against Taylors. If it was thought that his remarks implied that Taylors had interfered with witnesses, he withdrew them.

The Chairman announced that judgment would be given in due course, but he would like to say that he and colleagues agreed that certain matters had been brought before them which were not included in the allegations. A charge of greater gravity could be made than that that had been attempts to interfere with witnesses or tamper with the course of justice by bringing improper pressure to bear on members of the Insurance Committee. He wished to say that not a scrap of evidence had been brought forward to support the statement. They regarded with favour the fact that a public official should have brought a charge of that kind without any evidence.

Reports from Local Centres.

With special reference to the supply of medicines and appliances. See also Association Affairs.

ENGLAND.

Birmingham.—The Panel Committee has referred to the Pharmacopoeia Sub-Committee for investigation a number of cases of alleged excessive prescribing during 1914, forwarded by the Pharmaceutical Committee.—Mr. J. F. Liverseege, F.I.C., Ph.C., public analyst, reports that during the last quarter nineteen prescriptions written by panel doctors, ordering a mixture and a paint, were dispensed by panel chemists, and sixteen samples of medicine from twelve chemists were found not to have been properly dispensed. The prescription ordered "Mist. sod. salicyl.," which, according to the local Pharmacopoeia, should contain 160 grains of sodium salicylate and 48 grains of ammonium carbonate in 8 oz.; thirteen samples were sufficiently near the correct composition to be passed, but six were unsatisfactory. In several cases the deficiencies were due to the use of stock solutions. Some chemists prepared these incorrectly, using the avoirdupois oz. (437.5 grains) instead of the apothecaries' oz. (480 grains). Some of the stock solutions of ammonium carbonate were deficient in strength owing to having been kept too long, and the use of powdered ammonium carbonate, which had become converted into bicarbonate, probably accounts for the deficiency in some of the mixtures. Nine of nineteen samples of iodine paint were passed, but ten were unsatisfactory. In a number of cases the article supplied was stronger than that ordered. The prescription ordered "Tinct. iodi fortis"; the Pharmacopoeia (1914) states that this "contains approximately the same proportion of iodine as the liq. iodi fortis of the B.P. 1893." To use the word "approximately," Mr. Liverseege adds, to cover a difference of 17 per cent. is somewhat misleading, and some of the chemists dispensed the "liquor" (B.P. 1893) as equivalent to the tincture (B.P. 1914). The excess in strength of the paints was probably due to keeping the preparation in imperfectly-stoppered bottles, which had allowed spirit to evaporate. Two of the samples were not dispensed in poison-bottles, which, for a strong preparation like this, is an unsatisfactory practice.—A meeting of panel chemists was held on August 11 to consider the proposals for an emergency settlement for 1914. Representatives of about fifty persons or firms were present. The chairman (Mr. C. Thompson) gave certain details of 1914 accounts and payments already received on account. The secretary submitted figures showing the number of insured persons in the area for 1913 and 1914, and intimated his belief that the amount credited under the emergency settlement would ultimately prove to be less than is due. The reasons for and against acceptance were discussed by Messrs. Coole, Barlow, Critchlow, Tramner, Smallwood, Griffin, Evans, Buckingham, and Jennings, and ultimately it was decided to recommend acceptance of the emergency settlement, the meeting at the same time expressing its great satisfaction at the smallness of the sum allowed.

Bury.—At a meeting of the Insurance Committee on August 3, it was reported that the amount available for the emergency settlement of chemists' accounts for 1914 is £731. A letter was read from the Pharmaceutical Committee, asking to be furnished with particulars of (a) the number of persons on the doctors' lists for 1914, and (b) the number of persons attended by each practitioner, and the number of attendances. The Clerk stated that he had supplied the former item, and had applied to the Commissioners for the latter. The Commissioners had replied that a number of record-cards received from the various practitioners had already been forwarded to the Committee, and expressing regret that, owing to the pressure on their staff, they could not undertake to furnish particulars of the number of attendances. The Committee resolved to forward the schedules of the record-cards previously received from the Commissioners to the Pharmaceutical Committee, with a request that under the circumstances the latter Committee should dispense with the other statistics.

Humberside.—The number of prescriptions examined by the Pharmaceutical Committee for the Insurance Committee for the quarter ended March 31, 1915, was 33,041 (value £102.). Of these, 33,020 were chargeable to the Drug Fund, 10 to the Temporary Residents' account, and 7 to the Sanatorium Benefit Fund. The average number of insured persons on the lists for the quarter was 57,210, and the average cost per insured person worked out at 5.072d. The quarter was a heavy one for drugs, but it is anticipated that the second and third quarters of the year will be much lighter, and make the figures for 1915 approximately the same as those for 1913 and 1914, when the average cost per insured person was about 1s. 6d.

Gloucestershire.—The local Medical and Panel Committee has expressed to the Insurance Committee its willingness to pay 25 per cent. of the checker's salary, "provided the Pharmaceutical Committee will pay a similar amount out of the voluntary levy made by it."

Hertfordshire.—The new Pharmaceutical Committee met on August 4, when the following officers and members of Sub-Committees were elected for the current year: *Chairman*, Mr. S. T. Milbank, Bishops Stortford; *Secretary*, Mr. D. W. E. Barker, Watford; *Pharmaceutical Service Sub-Committee*, Messrs. R. Bennion (Watford), F. W. Cannon (Baldeock), and E. H. Fisher (St. Albans); *Joint Services Sub-Committee*, Messrs. R. Bennion and F. W. Cannon.

Ipswich.—Chemists' accounts for 1914 and for the six months ended June 30, 1915, have been paid in full.

Manchester.—The following appointments have been made in connection with the new Pharmaceutical Committee: *Chairman*, Mr. F. W. Bates; *Vice-Chairman*, Mr. J. H. Nidd; *Treasurer*, Mr. J. Bell; *Hon. Secretary*, Mr. G. A. Mallinson. The Insurance Committee has paid 90 per cent. of chemists' accounts for June.

Portsmouth.—Details of the Commissioners' offer for an emergency settlement of chemists' accounts for 1914 have now been issued to chemists. The amount available for the Drug Fund and the Temporary Residents' Fund is £3,252. Chemists' accounts against these funds amount to £5,881., of which £4,647. has already been paid on account. There is therefore now available for distribution £771. 10s., which will bring the payments to chemists for the year to 90.55 per cent. of the amounts of their accounts. This is slightly better than was anticipated (C. & D., May 22, p. 94). At a meeting on July 23 it was decided, by a majority, to accept the emergency settlement.—The annual report of the Pharmaceutical Committee indicates that nine meetings were held during the year ended July, in addition to joint conferences with the Panel and Insurance Committees. On the outbreak of war a conference was held with the Panel Committee to consider what steps should be taken to prevent the excessive use of certain drugs likely to become scarce, with the result that a circular-letter, pointing out the position of the Drug Fund and the necessity for economy, was issued to every doctor and chemist on the panel. The Committee being of opinion that the checking of prescriptions should be done locally, a joint conference of the three Committees concerned was held, with the result that a checker was appointed, the three Committees sharing the expenses. Protest was made against the inclusion of the stock-mixture clause in the Tariff and against the proposal of the Panel Committee that malt and cod-liver oil and similar preparations should be removed from the Tariff. The list of dispensing contractors issued in December contained the names of forty chemists, two limited companies, and one firm of surgical-instrument makers (for appliances only). Application for 80% for administrative expenses was made, and grants have been obtained as required. It was decided that the B.P. 1914 should come into force for Insurance purposes on July 1. The following is the return for chemists' accounts for 1914:

	Chemists' Accounts £ s. d.	Average Price of Prescriptions d.	Number of Prescriptions
First quarter	2,190 16 7	8.9	59,013
Second quarter	1,50 17 5	8.4	42,755
Third quarter	1,161 18 2	7.95	35,070
Fourth quarter	1,014 17 7	7.73	31,522
	5,868 9 9		168,360

Chemists' accounts for 1913 were paid in full. Accounts for the first two quarters of 1914 were also paid in full; for the third quarter of 1914 80 per cent. was paid, and there remain, therefore, 20 per cent. of the third quarter's accounts and the whole of those for the fourth quarter unpaid, also the amounts due for special war-scheduled drugs. According to the estimate of the Clerk of the Insurance Committee, the position for 1915 appears a little more satisfactory. In the first quarter the income was over-spent by about 580., the prescriptions numbering 50,500 (value £1,713.), and average cost 8.03d.). The figures for the second quarter are not yet available. The Panel Committee is anxious to have a local Pharmacopoeia, and as the Pharmaceutical Committee has no option but to accept it, it is hoped that by mutual agreement a Pharmacopoeia may be compiled which will eventually result in bringing the cost of drugs within the limits of the Drug Fund.

Rochdale.—Particulars of the emergency settlement of chemists' accounts for 1914 were submitted to the Insurance Committee on August 9. Chemists' accounts amounted to £4,193., of which £3,520. has been paid on account. The amount available under the emergency settlement is £3,657., which leaves £367. now payable to chemists. The final

payment will be equal to 87.19 per cent. of the amounts of the accounts.—The Pharmaceutical Committee has decided to recommend chemists to refuse the emergency settlement, and to wait for settlement of their 1914 accounts till the exact credits for 1914 are obtained.

Sheffield.—A meeting of panel chemists and other contractors was held on August 10 to consider the proposed emergency settlement for 1914 (*C. & D.*, August 7, p. 56), Mr. H. G. Williams, Chairman of the Pharmaceutical Committee, presiding. The Chairman stated that the Pharmaceutical Committee had considered the proposals, but had felt that the matter should be left to the present meeting to decide. The Secretary reported on the 1913 and 1914 accounts. It is estimated that 20,000 insured persons enlisted during 1914, for whom allowances of 10*d.* to 6*d.* per case would be made, and the chief point to be considered is the amount which would be justified as a deduction for enlistments. This, it would appear, might reach 83*3d.*—slightly over 5 per cent. Against this must be placed the fact that the register shows an increase of 7,700 insured persons, compared with 1913. The Secretary emphasised the fact that if the emergency settlement is not accepted panel chemists have no means of arriving at a correct estimate of the number of insured persons, and the decision of the Commissioners on this point might greatly affect the final amount allowed. Of the 1914 accounts 26.25 per cent. is still outstanding. The emergency settlement would allow a further payment to chemists of 10 per cent. of the amounts of their accounts. A long discussion took place, and the opinion was expressed that a copy of the letter addressed by the Commissioners to the Pharmaceutical Society in May should have been in the hands of each panel chemist. Mr. Chadwick proposed that consideration of the matter be adjourned till the information promised in paragraph 11 of the Commissioners' letter to the Society be received. An amendment that the emergency settlement be refused met with some sympathy, but the motion was carried. The Secretary was instructed to inquire of the Insurance Committee when payment of the special war-scheduled drugs supplied during 1914 might be expected. It has been decided that prescriptions for mist, guaiacum of the local Formulary must bear the number (47) as well as the name of the preparation. The price of No. 102 of the local Formulary will in future be 2*d.* instead of 1*½d.*, *plus* dispensing-fee.

Surrey.—The Panel Committee has informed the Insurance Committee that the items in the Pharmaceutical Committee's estimate for administrative expenses to which the Panel Committee object are the rent of office and its furnishing and clerical assistance apart from the Secretary's remuneration, and that if the estimate is reduced to 80*d.* the Panel Committee will withdraw further opposition (*C. & D.*, July 31, p. 148).

West Bromwich.—The amount offered under the emergency settlement for 1914 (28*4d.*), *plus* the sum already paid on account (1,881*l.*), will bring the Drug Fund for 1914 to 2,165*l.*, leaving a balance due of 12*1d.* The mean number of insured persons in the area is 24,979, equal to a Drug Fund of 2,480*l.*, which exceeds the amounts of chemists' accounts by 212*7d.*—Panel chemists met on August 10 to consider the proposals, Mr. James Lock, Chairman of the Pharmaceutical Committee, presiding. The Secretary stated that 77,203 prescriptions (value, as checked, 2,286*l.*) were dispensed in 1914. Several chemists took part in the discussion, and the general opinion was that the settlement is unsatisfactory and unbusinesslike, but that under the circumstances it would be policy to accept it. The Clerk to the Insurance Committee, who was present, answered several questions and advised chemists to accept the settlement. He had already received nine acceptances.

Wigan.—The Pharmaceutical Committee met on July 27. The following officers and members of Sub-Committee were elected: Chairman, Mr. O. Hunter; Secretary, Mr. T. Winstanley; Treasurer, Mr. R. H. Dawson; Sub-Committee, Messrs. Ashcroft, Mould, Worthington, Mason, Hodkinson, and Pennington. A report of the Pharmaceutical Committee's proceedings for 1914 indicates that nineteen meetings were held. An investigation under Regulation 40 had been carried through, resulting in the surcharge of eight doctors in two-thirds of the amount claimed (269*l.*). Since then there has been a considerable diminution in prices and number of prescriptions. The administrative expenses of the Committee were obtained and much organising work had been done, including the formation of a rota of chemists for holidays and Sundays. Mr. R. H. Dawson had been appointed representative of the chemists on the Medical Benefit Sub-Committee. A proposal that chemists should be paid at least 65 per cent. on presentation of their accounts each quarter will come before the next meeting of the Insurance Committee. It is further suggested that such payments should be made monthly.

York.—The local Medical and Panel Committee strongly disapproves of the Pharmaceutical Committee's claim for administrative expenses for 1914, and has suggested that the funds of the Pharmaceutical Committee should be raised by voluntary subscription, as is done in the case of the Panel Committee.

SCOTLAND.

Lanarkshire.—The Pharmaceutical Committee met on August 4, Mr. W. Bruce, Larkhall (Vice-Chairman), presiding in the absence of the Chairman. The report of the Central Checking Bureau for May was read and approved. During the month 6,858 prescriptions (value 248*7d.*, and average cost 8.66*d.*) were dispensed, compared with 9,084 prescriptions (value 331*7d.*, and average cost 8.74*d.*) for May 1914. The Committee approved of the request of the Panel Committee that arm and leg splints should be added to the Tariff list of appliances.

Renfrew.—The Panel Committee has expressed the opinion that the arrangement at present in force whereby "repeat" prescriptions are limited to one calendar month should be given a fair trial. Drs. Hill and Corbett have been deputed to represent the views of the Panel Committee to the Insurance Committee, and, if possible, to come to some arrangement whereby the limited use of "repeat" prescriptions might be continued.

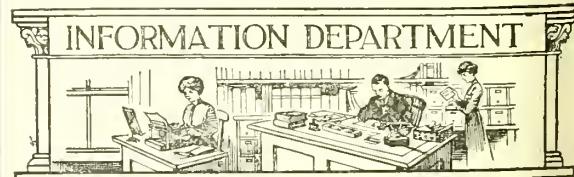
Wigtonshire.—The Panel Committee has agreed, in view of the increased cost of drugs, dressings (most of the practitioners in the area dispense), and other working-expenses, to call upon the Commissioners to pay the 1914 balances within one month; otherwise the panel practitioners will reconsider their position, with a view to repudiating their contracts with the Insurance Committee.

WALES.

Cardiganshire.—The Insurance Committee on July 30 passed payments to chemists for the second quarter of 1915 of 90 per cent. of the amounts of their accounts, less the over-payments made in the preceding quarter. The Committee also adopted a resolution that in future only such chemists' accounts as are received prior to each quarterly meeting of the Finance Sub-Committee shall be passed for payment, and that the consideration of any accounts received after such meeting will be deferred to the next quarterly meeting.

Pembroke.—At a recent meeting of the Finance Sub-Committee, the Clerk submitted a report on the Drug Fund. The Commissioners have now issued their final settlement for 1913, the amount available for the Drug Fund being 1,898*7d.* over the amount under the provisional settlement. This will reduce the deficiency in regard to chemists' accounts from 98*7d.* to 50*d.* It was resolved to pay chemists' accounts for the second quarter of 1915 in full (75 per cent. immediately, and the remainder when checking is completed), and to pay a further 5 per cent. on account for the first quarter of 1915.

Swansea.—The local Medical and Panel Committees have adopted ten stock mixtures under the stock-mixture clause.



Postal Address:

C. & D. INFORMATION DEPARTMENT, 42 Cannon Street, London, E.C. Telegraphic Address: "CHEMICUS, CANNON, LONDON" (two words). Telep. one Number: 3617 CENTRAL (three lines).

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189/73. Junot's oatmeal powder.	address.
192.18. "Salvoline."	192.4. "Mastic" hair-brush.
192/73. Haywood razors.	191.37. "Ortol" (British)
192.75. "Wild Geranium" perfume.	makers of chemical equiva-
193.5. Dr. Roger's ear-plugs.	lent)
191/44. "Antiver," an insect-	194/49. Oil of Guineral.
poison used in the dressing of	195/50. "Auto-vermin" or
hides.	"Auto-verminite."
191/38. Caoutchoucine.	195/42. "Optimus" medicine-
	measures.
194.49. Iodonucleoid: supplies.	195/53. "Pedicorn."

See also "War Wants Exchange" in the Coloured Supplement.

Observations and Reflections.

By Xrayser II.

Your Summer Number

contains much that is of more than temporary interest, and I need not apologise for a few comments upon it, for which its late arrival gave me no time last week. One of its most attractive articles is that on Mr. Frederick Hanbury, which will stir a feeling of pride in every pharmacist. It is no mean calling that gives occasion for such a record. It is to be hoped that some day some loyal pharmacist will give us a history of historic drug-houses; if ever this happens your columns will afford him invaluable material. The quasi-historical article "About Ourselves" appeals to my antiquarian side; the illustration on your cover which suggested it is charming, and the article is worthy of the picture. I think, however, that you scarcely do justice to the quince, which was of more importance in medicine than appears from what you say. Syrup of quince was as well known in our own country as abroad; it was official down to the publication of the *Pharmacopeia* of 1788, it entered into several electuaries, and was prescribed alone. Quince pooh-poohs it, but he is apparently speaking of an unofficial syrup; the P.L. preparation was a compound, and it may be admitted that quince-juice was not its only useful ingredient. Quince marmalade (or quiddany) was official in Scotland, and both this and the syrup, though not in their official form, are familiar in old books of household recipes. Moreover, the quince actually was, in the opinion of many scholars, the golden apple of the Hesperides, the apple of Atalanta, and of Cydippe, and also that of the Song of Songs. Of your more topical articles that on ambulance work in France will perhaps be most eagerly read.

The Mid-day Rest,

or at least sufficient time for a mid-day meal, is as necessary to the pharmacist as the curtailment of his hours at night. The single-handed man gets no pleasure and little good from his dinner. As one of your own poets has said,

"Betwixt his parlour and his till
He bolts his victual as he may."

with results that make neither for good health nor for good business. "Oh," said a lady to me the other day as I emerged from my room in answer to her call, "I'm so sorry! You are dining." "Madame," I replied, "a chemist doesn't dine; he feeds." It is too severely true, and feeding-time is the most trying hour of the day. It is largely responsible for the dyspepsia and consequent uncertainty of temper which our novelists, from Dickens to Mr. Arnold Bennett, so frequently attribute to us, and the fact that nobody knows exactly when it occurs or how long it lasts may easily rob us of more custom than a fixed closing-hour would do. I am sure my lady friend would not want to disturb me again, and yet she would not know when there was a danger of doing it. The least considerate of mortals would scarcely care to keep us discussing his requirements to an accompaniment of knife-and-fork play audible from an adjoining room.

The Value of a Trade-mark

was never better exemplified than in the fortune of more than one and a half million left by Mr. J. C. Eno. I see that some ingenious writers are speculating as to the reason why Mr. Eno's advertising, which (they say) violated every rule of the experts, was so successful. The explanation is simple to the pharmacist. Mr. Eno's first great asset was the name, "Fruit Salt or Fruit Saline," he gave to his speciality, and the next was the nature of the preparation, which was such that the public not only liked it, but found it did them good, as every saline laxative is bound to do. And so the people who bought it came back for it; moreover, they believed it had some distinctive excellence that made it quite superior to other effervescent salines that were on the market. It was not Eno's style of advertising that made his fortune: any other style if

carried out with equal boldness, would have done the same thing. With a name and a substance like "Fruit Salt" it would simply be impossible not to succeed, unless advertising were dropped altogether. Perhaps I may be allowed to add what a pleasure it was to see the way in which Mr. Eno disposed of his fortune.

The Division of the Minor Examination

is not to be allowed to go to sleep. We have heard little about it since the abortive attempt to institute a compulsory curriculum was abandoned, but I do not recall having seen it stated that the Council had decided definitely to postpone action on the matter. The Board of Examiners for Scotland may quite reasonably think that it would be much better to take up the subject, discuss it dispassionately, and settle it when there is practically nothing doing in pharmaceutical politics. Apparently there is not much co-operation between the men in the inner circles, otherwise there would not have been expressions of surprise from some of the councillors when the subject was mentioned, and this absence of co-operation augurs ill for the success of the present attempt to reopen the discussion. I hope, however, that the men who are wedded to the curriculum idea will not block any effort to redress grievances that admittedly exist, and it will be a real tragedy if personal feeling is allowed to endanger a promising solution of this troublesome question. It would be poor policy and worse statesmanship to wreck one scheme which everyone approves of because someone cannot get his way in regard to another scheme on which opinion is divided.

"Serve by Saving"—

this is the message of the Parliamentary War Savings Committee to the country at large, and there can be no doubt that, whether from patriotic motives or perforce, a rigid economy will be practised by most people while the war lasts. How will this affect trade? It cannot fail to affect seriously the trade in everything but necessities, and those of us who depend to a considerable extent on the demand for luxuries may well be anxious with regard to our returns. This is not a time for quarreling with our bread and butter; whatever grievances we may have against the Insurance Act, we must not lightly give up our hold on what is, after all, the main chance. That Insurance work, with all its drawbacks, does strengthen our hold on this none but the most short-sighted of pharmacists will deny. It is badly paid, but it is a nucleus round which other business naturally gathers and is held together. Apart from the supply of medicines there is no real *raison d'être* for the pharmacist as such, and the supply of medicines depends more and more every year upon medical prescription. This fact should make us patient under our present trials, and I am glad to note that accessions to the panel rather more than overbalance withdrawals from it. And what of

The Retail Trade

itself (strictly so-called) in these critical times? It will demand increased efficiency, both in buying and selling, if prosperity is to be maintained. Our customers, now they must look at every shilling they spend, will see to it that they get full value for their money; they will scrutinise everything they buy, and its price, and we must do the same. My experience on the road assures me that many chemists are anything but careful how they buy; it is not merely judgment that is required, but a greater keenness with regard to terms. It takes two to make a bargain, and how often do we bargain with the man from whom we buy? Most men might save a good percentage on their purchases in this way, and (I may add) by a little more promptness in settling their accounts. Something, too, might be done on the selling side. Our old "take it or leave it" attitude may be professional, but it is not businesslike; the art of pleasing is as necessary to commercial as to social success—it is, indeed, in either case only a part of good manners. To "find out men's wants and will and meet them there" is, as George Herbert knew, a form of kindness—and the best of all recommendations.



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 "Bactox," "Okol," "Creocide," "Soldis," "Pinos."
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PATENTS AND TRADE MARKS.

There are many worrying difficulties to be overcome in connection with the Registration of Trade Marks and the grant of Letters Patent which members of the Retail and Wholesale Drug Trade can avoid by consulting an efficient agent, who would undertake all the trouble for an inclusive fee and obtain protection in the United Kingdom and abroad. Advice in the first instance free. Pamphlets gratis.

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Editorial Articles.

Preliminary Examinations.

TWENTY-FIVE years ago the ambition of many educational reformers in the matter of preliminary education and examination was to secure and enforce the one-portal system of admission to the professions, and at that time and for many succeeding years the aim was to level up to the standard of the London Matriculation examination. The ideal was excellent, and if it could have been reached, the younger men of the present generation might possibly have been a little more highly educated than they are. Most of the "big" professions, together with our own "craft," as it is sometimes euphemistically called, made the attempt, but first one and then another gave up in despair, and now, with the exception of some of the great Universities, there is hardly an institution of any note in the country that has not adjusted its requirements to existing scholastic conditions—i.e., to the actual level of education now obtaining in secondary and public schools. This level is not an arbitrarily fixed standard, but is simply what may be called the high-water mark of public opinion. This is, perhaps, a poor standard at the best, but in a free country, where we insist on individual liberty, it takes a long time to reach perfection, and we must persevere use the implements we have. One of the most conspicuous changes in our educational system has been the elimination from the average curriculum of study of the classical languages, Greek and Latin. Although for the derivation of scientific terms these languages are more needed to-day than ever, a student who takes Greek in a Medical Preliminary examination is almost unheard of, while in the public school Leaving examinations the candidate who passes in Latin is also a *rara avis*. The result is that professional bodies have been compelled to take account of this tendency, and their Preliminary requirements have been modified accordingly. The General Medical Council, who early began the screwing-up process, were after a few years convinced that they had pitched their demands unreasonably high, and a falling-off of students soon compelled a reconsideration of the position. The same holds good of the veterinarians, who found that the screwing-up was going to end in disaster; and last of all the Pharmaceutical Society, who followed suit (and in doing so, we may remark incidentally, dropped 10,000), at least during the ten years following their adoption of the forward policy), have now had so to modify their demands that even Latin is regarded as an optional subject, while the examination may be taken at three sittings. Even some of the Universities—as, for example, London and Leeds—do not insist on Latin for matriculation, and to-day, so far from having even an approximately uniform Entrance examination, the pendulum has swung to the extreme in the opposite direction, only two subjects (English and Mathematics) now being regarded by every Board as compulsory. The position of the Central Medical Council in relation to the preliminary education of medical students is frequently misunderstood. It is commonly

supposed that every medical student must be registered as such before he sits for his First Professional examination, but this is a mistake. There is no law compelling a medical student to register. Registration is a convenience, and in point of fact 80 to 90 per cent. of all medical students do register, but the remainder never do. No one can be registered as a "medical student" who has not passed in Latin, and it follows that those students who have not taken Latin in the London or Leeds Matriculation examination are not registered as students. The General Medical Council places on the licensing authority the responsibility of seeing that the student has received a satisfactory general education, and once the student has passed all his Professional examinations the Council must place his name on the register, even if he does not know a word of Latin. The position is admittedly anomalous, since it is an absurdity that the G.M.C. will not register a man as a medical student unless he has passed in Latin, but will register him later as a medical man, even though he knows nothing about Latin.

It may here be mentioned that in view of the present shortage of medical students, the Conjoint Board are willing to make special relaxations in favour of men who passed Preliminary examinations more than ten years ago, even if these examinations are below the present standard, all such certificates to be considered on their merits. They, of course, accept the London Matriculation certificate even if Latin has not been taken, but for all other certificates Latin is a compulsory subject. The Board are also prepared to allow the time spent in science study at recognised schools to be counted as part of the medical curriculum. Many pharmaceutical chemists might therefore be admitted without delay to examination in the physical-science subjects, and these concessions, with which the General Medical Council cannot interfere, ought to smooth the path of those pharmacists who are so anxious to jump out of the pharmaceutical frying-pan into the medical fire.

However, as the average standard of "general knowledge" of the pharmacist of the past has been distinctly lower than that of the medical man, or even that of the veterinary surgeon, it appears to us to be unreasonable to expect medical licensing bodies to accept pharmacists *en bloc* as medical students. The agitation that has been set on foot for such general recognition would seem to be destined to failure. There are, no doubt, many individual pharmacists who would be accepted without any difficulty, and pharmacists can always make individual application to have their certificates considered on their merits.

Medical Students and *Materia Medica*.

THE Royal College of Physicians of London have recently adopted a modification of the syllabus for the examination in *materia medica*. "The Lancet" in commenting on the change states that

The list of drugs which should be recognised has been very considerably curtailed, and this is reasonable, since most practitioners in future are unlikely to continue to dispense. The drugs left in the short list are only what may be regarded as "emergency drugs," and they are of such importance that everyone possessing a qualification should be able to recognise them at a glance. Students are no longer to be worried about recognising crude drugs, portions of stems or roots, leaves or seeds which are never in this form to be found on the shelves of ordinary pharmacies or in the dispensaries of medical men. A second short list comprises drugs of which there are official preparations intended for internal or subcutaneous use, and it is desired that a knowledge should be shown of the proportions of the active ingredient. It may be noted with satisfaction that

this list includes remedies which in overdose have toxic actions; there can be no doubt, therefore, of the wisdom of indicating in this way the special need of accurate knowledge. A third list is given of drugs of which the doses should be committed to memory; this list is the longest and also the least satisfactory. It is impossible not to have a lurking suspicion that it represents a developmental stage of the work of the Committee before getting to final grips with the crux—the question whether, if the pharmacological action of drugs was permitted to form an integral part of the examination, it would be desirable to limit the range of questions upon this subject. The essential recommendations, which have been accepted by the Royal College of Physicians of London, are that a *viva-voce* examination in elementary pharmacology should be taken as part of the Second examination, which at present deals only with anatomy and physiology; and that, in order to preserve the elementary character, candidates are not to be examined upon the experiments by which the actions of drugs have been determined, nor are they at this stage to be questioned on therapeutics. This represents a very considerable advance, and it will serve as a valuable stimulus to those engaged in teaching pharmacology.

It will be noted that our contemporary looks to a future when practitioners will discontinue dispensing. This is desirable from many points of view. At the same time steps should be taken to improve the weakness which many practitioners display in the art of prescribing.

After One Year of War.

II.—The Supply of Fine Chemicals.

IT is safe to say that on the outbreak of war a year ago no one had fully realised the extent to which this country was dependent upon Germany for the supply of fine chemicals. The cessation of supplies of medicinal fine chemicals which followed soon sent up the price of these products and brought it home to chemists that economic factors were at work. Supplies from other sources have since exerted a modifying effect. The textile and other important industries quickly felt the effect of a shortage in aniline dyes which threatened to have very serious consequences on these industries. The Government, it is fair to add, took action at once, as the continuance of the supply of chemicals and of aniline dyes is bound up with the efficacy of military operations no less than with the pursuit of the peaceful industries of the country. A Government Committee took the matter in hand, the greater part of the investigation being left with Lord Moulton, who, besides being an eminent lawyer, has an exceptional knowledge of chemical science. These qualities were of much service to the country in this matter. The result of the investigation convinced Lord Moulton that this country had been placed in a most humiliating position in regard to the manufacture of fine chemicals—he said so rather plainly at a meeting of the Royal Society of Arts—and that something must be done at once. A scheme was evolved for increasing many times the amount of aniline dyes manufactured in this country. It involved a Government grant of money and a plan for a research laboratory in connection with the aniline-dye industry. The scheme caused a good deal of criticism from various interested parties, but the outcome is the successful flotation of British Dyes, Ltd. The company acquired the aniline-dye business of Read Holliday & Sons, and at once set about enlarging the works, building new premises, and installing fresh plant. The Research Committee in connection with the scheme has been appointed, and includes most of the young organic chemists available for the purpose. The whole scheme has been founded on sound lines, which we think will eventually ensure its success. Even at present, with the handicap of war conditions, considerable progress has been made in meeting urgent demands

for dye-products. We have traced at some length the steps taken to increase the production of aniline dyes in this country, because, as has been pointed out in *THE CHEMIST AND DRUGGIST*, the manufacture of medicinal chemicals, especially synthetic remedies, is closely bound up with the manufacture of aniline dyes. Both depend upon raw and intermediate materials derived from coal-tar. Moreover, often by using up for the manufacture of synthetic remedies what would otherwise be waste products, the making of certain dyes can be more profitably conducted. The scheme gives good reason for hoping that in the future the greater part of the home consumption of aniline dyes and synthetic drugs will be met by British manufacturers, and that the humiliating position of dependence upon Germany for these products will be removed. A further step in the process of rehabilitating the fine-chemical industry in this country is the appointment recently (*C. & D.*, July 31, p. 141), on a permanent basis, of a National Research Committee, which is to arrange and carry out chemical research-work required by the industries of this country. Upon this Committee pharmacists are to be represented through the Pharmaceutical Society and Chemical Society, and it is to be hoped our representatives will be insistent on the working-out of many of the unsolved problems involved in the manufacture of medicinal chemicals. Many people would be astonished at the difficulties, some apparently quite trifling, involved in the manufacture of certain commonly used chemicals. At present each manufacturer of a particular alkaloid has to engage in a tedious research as to the conditions of crystallisation, and, having found this out, is naturally not desirous of presenting the results to the world. The National Research Committee should be able to help in such a matter for the benefit of any manufacturing chemist desirous of engaging seriously in that particular manufacture. Another example that may be quoted is the making of eucaine. The data given in the patents are altogether inadequate for the production of this chemical—not at all unusual in patents taken out by German chemists. The problems involved have already been worked out at the Imperial College of Science, but the information is not yet apparently available for independent manufacturers.

At the present time, as pointed out last week, there are difficulties in the way of starting new industries in this country, and these are intensified in the case of the manufacture of the numerous fine chemicals which have coal-tar products as their raw material. The production of coal tar and coke-oven distillates has been enormously increased during the year for the purpose of making high explosives, but of this naturally only a minimum amount can be spared for chemical-makers. When, however, swords have been beaten into ploughshares, an almost unlimited supply of coal-tar raw materials will be available. The use for war purposes of certain raw materials supplies the answer to a question we are often asked as to why the present price is so high of certain fine chemicals now being made in this country. Phenol, required for making salicylic acid and aspirin, is employed in enormous quantities for making explosives, and this enhances the price of the limited amount available for civil uses. In other cases a difficulty experienced is that the manufacturer who starts to make a chemical hitherto mainly imported has to manufacture several of the intermediate products which he requires. As we have indicated above, the establishment of a large aniline-dye

industry in this country is bound to result in an increase in the manufacture of the intermediate products from which synthetic remedies originate. There are, of course, many fine chemicals, such as alkaloids, which do not depend upon the coal-tar industry. There is an important industry in this country in the manufacture of alkaloids, and this is already being added to by the manufacture of many others which, up till a year ago, mainly reached this country from Germany. We have compiled a list of chemicals the manufacture of which has been started or resuscitated here since the outbreak of war. This does not profess to be a complete list, and includes only those which have been brought to our knowledge. It will be understood that since the outbreak of war large supplies of many fine chemicals have reached us from Allied and neutral nations, but the purpose of the present article is to show especially the effect of the war in stimulating the manufacture of chemicals in this country.

Acetic anhydride.	Hyoscine.
Acetone.	Hyoscynamine.
Acetyl chloride.	Iodised protein.
Albumen tannate (tann-albin).	Ionone.
Alcohol, absolute.	Lanoline.
Aluminium bronze.	Lecithin.
Aluminium hydrate.	Levulose.
Amidol.	Magnesium ribbon.
Ammonium sulphocyanide.	Menthol.
Aniline dyes, new.	Methyl di-tannin (tannin-form).
Antifebrin (acetanilide).	Metol.
Aspirin (acetylsalicylic acid).	Musk, artificial.
Atropine and salts.	Neosalvarsan.
Barium platinocyanide.	Enanthic ether.
Barium sulphate, med.	Paraffin (medicinal).
Barium sulphocyanide.	Phenacetin.
Benzilidene.	Phenolphthalein.
Benzoic acid and salts.	Phenylhydrazine.
Benzyl chloride.	Pilocarpine.
Betain hydrochloride.	Pyramidon.
Bismuth subgallate (dermatol).	Rare earths.
Bisinuth tribromphenylate (xeroform).	Salicylic acid and salts.
Camphor monobromate.	Salipyrin.
Cantharidin.	Salol.
Cellulose acetate.	Salvarsan.
Chromic acid.	Silver protein (protargol).
Cineol.	Sulphonal.
Cocaine and salts.	Syntan.
Diacetyl tannin (tannigen).	Terpene hydrate.
Dulcite.	Terpeneless oils.
Eserine and salts.	Terpineol.
Eucaine.	Theobromine sodio-acetate (agurin).
Formalin.	Thiosinamin.
Gallie acid.	Thymol.
Glucose (medicinal).	Thymol di-iodide (aristol).
Glycerophosphates.	Triacetin.
Glycin.	Trional.
Homatropine.	Tropacocaine.
Hydroquinone.	Urotropin (hexamine).
	Vanillin.

Many of these chemicals require to be made in group if the manufacture is to be placed on a permanent basis. This is being done in several cases, and, given adequate supplies of raw materials, it is certain that a very large permanent increase will result in the manufacture of fine chemicals in this country. It takes time for an acorn to grow into a great oak. Bigger problems have been solved before now by British manufacturers, and there is no reason why the present one should not yield to persistence and patience of chemists and chemical manufacturers. Mention should be made here of the assistance rendered to the chemical-industry by the compilation by the Institute of Chemistry Committee of new series of standards for fine chemicals. The provision of these standards has been a very great service to the whole industry.

Legal Reports.

Trade Law.

Trade-mark Disclaimers.—In the judgment of Mr. Justice Sargent which was delivered on June 22 (C. & D., June 26, p. 48) in the case where Cadbury Bros., Ltd., appealed against the refusal of the Registrar to accept a trade-mark for "Tudor" chocolates unless accompanied by a disclaimer, the appeal was *allowed* and the Registrar directed to proceed with the application without imposing any condition as to disclaimer.

Interpleader Action.—At Llandilo County Court, an interpleader action came on for hearing this week, in which Mr. Evan Evans, chemist, Ammanford, claimed goods in the Palace Theatre, of which he is the proprietor, and which had been distrained upon on account of debts due by the lessee (Mr. Oscar Mills). The Judge had held at a previous court that the curtains and the carpet were the property of Mr. Evans, but in regard to an operating cinematograph-machine and other articles, Mr. Smith, for the execution creditors, now submitted that the receipt produced for 50/-, alleged to have been given by Mills (the lessee) to Mr. Evans (claimant) for the goods, was a bill of sale, and should have been registered. With regard to the 144/- owing, it was stated, for rent, Mr. Mills admitted there was 72/- due for percentage, but in the agreement there was no stipulated time for payment. Ultimately the Judge held there had not been a complete and effectual sale of the goods, and with regard to the rent he was unable to ascertain what was due, as there was nothing in the agreement as to that. He gave a verdict in favour of the execution creditors, granting a stay of execution for fourteen days.

Deed of Arrangement.

Colman, Alfred Ernest. 7 Gresham Street, London, E.C., and 35 King's Road, Wimbledon, S.W., Chemist and Druggist.—Trustee: G. M. White, 14 Old Jewry Chambers, E.C., C.A. Dated, July 26; filed, August 3. Liabilities unsecured, 1,294/-; estimated net assets, 301/. This is an assignment on trust, etc., debtor's wife, a creditor for 700/-, postponing her claim.

Limited Companies.

New Companies Registered.

P.C. means Private Company and R.O. Registered Office.

H. S. WILCOCKS & Co., Ltd. (P.C.).—Capital 20,000/-, in 1/ shares. Objects: To carry on the business of indigo-importers and dyewood-extract manufacturers as formerly carried on by H. S. Wilcockes at 9 Oxford Street, Manchester, and elsewhere, as H. S. Wilcockes & Co.

SNYDER ELECTRIC FURNACE Co., Ltd. (P.C.).—Capital 1,000/- Objects: To acquire and turn to account any inventions relating to the manufacture of iron, steel, metals, and chemicals of all kinds. The first directors are G. J. Stock, analytical chemist; C. J. H. Stock, analytical chemist; G. H. Watson, and F. T. Snyder.

MEDCALFE & Co., Ltd. (P.C.).—Capital 1,000/-, in 1/ shares. Objects: To take over the business of mechanical and electrical engineers, chemical-manufacturers, etc., carried on by J. E. Medcalfe and W. T. W. Bourne at Audrey House, Ely Place, 241 Hatton Garden, and 26 Eyre Street Hill, London, as Medcalfe & Co. R.O., 26-28 Audrey House, Ely Place, London, E.C.

SANERVO, Ltd. (P.C.).—Capital 5,000/-, in 1/ shares. Objects: To take over from W. H. Day, 86 Potternewton Lane, Leeds, the trade-names for (1) a nerve-food called "Sanervo," (2) a cough-mixture called "Antico," (3) an antiphilic pill called "Antibo," and (4) a nerve-pill called "Lecophos," and to carry on the business of chemists, druggists, medicine-manufacturers, etc.

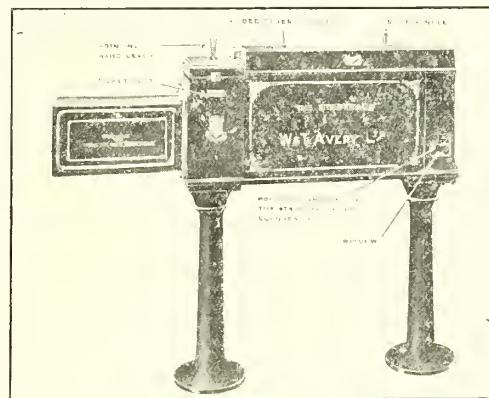
INCORPORATED SOCIETY OF CHIROPODISTS (the word "Limited" omitted from the title by licence of the Board of Trade).—Registered August 6 as a company limited by guarantee, with not more than 500 members, each liable for in the event of winding-up. Objects: To take over all part of the assets and liabilities of the National Society of Chiropodists, etc. R.O., 1 Silver Street, Bury Street, Westminster, London, W.C.

Trade Notes.

HOT-WATER BOTTLES.—At the time when contracts for hot-water bottles for the winter are being arranged, attention should be directed to the advertisement, in this issue, of J. H. Haywood, Ltd., Castle Gate, Nottingham. The prices are given in the advertisement, and the bottles are guaranteed to be English made.

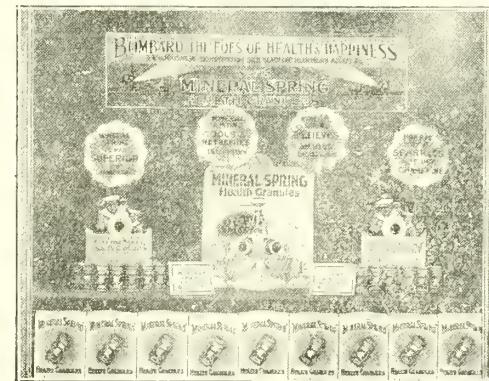
PELTOT'S CACHETS.—Mr. Cicero S. Clark, Pharmacie Francaise, 12 Richmond Road, Westbourne Grove, London, W., agent in this country for Peltot's cachets, informs us that he has now satisfactory stocks of these cachets in hand. Mr. Clarke has been unable to obtain supplies from France since the outbreak of war till now, and has had to refuse hundreds of orders. He finds it necessary to raise the price to 2s. per 1,000, carriage paid on orders of 5,000.

"STOPFRAUD" WEIGHING-MACHINE.—W. & T. Avery, Ltd., scale-makers, Birmingham, have just perfected a weighing-machine designed to prevent fraud and carelessness on the part of the weighman. The "Stopfraud" apparatus, as it is called, is figured in the illustration. It prints the weight



of the goods placed on the steelyard on a ticket, and this can only be done if perfect equilibrium is obtained. The apparatus is useful also for checking the weights of packages required to contain given weights of material, and so prevents leakage of profit. The mechanism of the "Stopfraud" is so arranged that it cannot be tampered with for the purposes of fraud.

"MINERAL SPRING" HEALTH GRANULES.—The note we published in the Summer Number (July 31, p. 137) regarding the new window-display for "Mineral Spring" Health Granules, brought out by Thomas Kerfoot & Co., Bardsley Vale Mills, Bardsley, did not, perhaps, convey sufficiently



vividly the features of the display. There is one large sign only supplied in addition to the bursting shells, and this is placed at the back of the window-enclosure, and not on the glass of the window. The illustration which we append conveys a better idea of the *tout ensemble* of the materials for display which Messrs. Kerfoot offer to supply to chemists. The particulars can be had by any of our readers who send a postcard request. The window-show is to be seen in Liverpool pharmacy windows, among other places. One enterprising pharmacist has had toy metal marines added to the ship's deck, which give a real "naval" touch.

Trade Report.

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garnishing and the like. Qualities of chemicals, drugs, oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities. Retail buyers cannot, therefore, for these and other reasons, expect to purchase at the prices quoted here.

42 Cannon Street, E.C., August 12, 6.30 p.m.

UNDER present abnormal conditions a very fair business is being done in chemicals and drugs, and there are some large inquiries in the market for export, especially for fine chemicals, the prices for which continue to advance—e.g., there has been a sharp rise in phenacetin, acetylsalicylic acid, salol, guaiacol carbonate, and resorcin. The lull in the demand for salicylates continues, but prices are unchanged. Quinine has advanced fully $\frac{1}{2}d.$ per oz. Citric and tartaric acids and cream of tartar are all more or less easier owing to the falling-off in demand. Quicksilver and Japanese refined camphor are easier. Sulphur is lower. Among drugs and oils there is a great scarcity of cassia fistula. Celery-seed and liquorice juice and root are dearer, and Italian orris cheaper, as are lemon and neroli oils.

Higher	Firmer	Easier	Lower
Acetic acid	Agar-agar	Ammonia sulphate	Cardamoms
Acetyl-salicylic acid	Benzoates	Areca	Cinnamon
Cassia fistula	Cocoanut oil	Benzoin	Honey
Celery-seed	Galls(Persian)	Kola (Siam)	Ipecacuanha (Rio)
Coriander-seed	Methyl-salicylate	Camphor (Jap. ref.)	Lemon oil
Cumin-seed	Shellac	Citric acid	Linseed oil
Elemi	Wax, veg.	Colza oil	Menthol
Fenugreek	(Jap.)	Cream of tartar	Neroli oil
Formic acid		Cuttle-fish	Sarsaparill (grey Jam.)
Guaiacol carb.		bone	Sulphur
Isinglass		Orris (Ital.)	
Lime oil (W.I. distilled)		Quicksilver	
Liquorice-juice		Santonin	
Phenacetin		Sarsaparilla (native J.)	
Quinine		Soya oil	
Salol		Tartarie acid	
Senna (Tinn.)		Turpentine	
Wax, bees' (Bl. Caleutta)			

London Markets.

ACETIC ACID.—Glacial, 99 to 100 per cent., has risen to 92s. 1½s. per ton.

ACETYL SALICYLIC ACID has been in very active demand at daily advancing prices, sales having been made at from 31s. 6d. to 33s. per lb. and upwards, according to seller and quantity.

AGAR-AGAR.—Sales of No. 1 Kobe strip have been made for July-August shipment at 1s. 11½d. c.i.f., and No. 3 at 1s. 4½d. c.i.f.

ALKALI has a slightly firmer tendency, although it is still obtainable at pre-war prices, in spite of the fact that fuel has advanced 50 per cent., while other costs, like labour and packages, have also risen.

AMMONIA SULPHATE is quiet at from 14s. to 14s. 5s. per ton net, naked at works, London, for 25-per-cent. ammonia; Hull, 24-per-cent., is 14s. 12s. 6d.; Liverpool, 14s. 15s.; Leith, 14s. 17s. 6d. per ton in bags f.o.b., less 3½ per cent.

ANISEED is nominally unchanged in price, but there is very little available on the spot.

BARBITONE in small lots is offered at from 40s. to 41s. per lb.

BENZOATES are on the firmer side, acid ex toluol being quoted at 7s. 6d. to 7s. 9d. and benzoate of soda at about the same figure.

BROMIDES.—One of the English makers announces that, owing to limited supplies, the list prices have been withdrawn, prices being quoted in response to specific inquiries. Second-hands ask 9s. 6d. for potassium and sodium, and 10s. to 10s. 6d. for ammonium.

CAFFEINE.—Makers are endeavouring to supply actual requirements on the basis of 21s. per lb. for the pure alkaloid, but there is great difficulty in meeting the demand, and the bulk of it goes unfulfilled. In second-hands much irregularity prevails, and extreme prices are named.

CALUMBA.—A lot of 40 bags of dull natural, part wormy, sorts sold without reserve at from 13s. to 14s. 6d.; for 20 bags of small to bold dull yellowish native washed, slightly wormy, 19s. to 21s. was paid without reserve.

CANARY-SEED is steady at 77s. 6d. to 80s. per quarter for ordinary to good quality on the spot.

CARAWAY-SEED is firm at 38s. to 40s. per cwt. for fair to good Dutch on the spot.

CASSIA FISTULA is very scarce and inquired for.

CELERI-SEED.—Dearer. Spot holders ask 100s., sales having been made at slightly less. The sharp advance is due to the recent American demand.

CELLULOSE ACETATE.—Some large quantities have been disposed of for technical purposes, and the product is coming into much larger demand; from 7s. to 7s. 6d. per lb. is quoted.

CINCHONA.—The auction to be held at Amsterdam on August 27 will consist of 2,151 packages pharmaceutical bark, weighing 113,412 kilos. The first-hand stock at Amsterdam on August 6 consisted of 12,237 packages Government and 50,948 packages private bark. The bark shipments from Java to Europe during July amounted to 1,004,600 Amst. lb., against 1,555,000 Amst. lb. in 1914. The total shipments for January-July 1915 amounted to 5,932,600 Amst. lb., against 9,340,000 Amst. lb. for the corresponding period of 1914. In the drug-auction 12 bales of ordinary dull broken Maracaibo sold at 5d. per lb.; 228 bales of Bolivian cultivated Calisaya quill were retired at 1s.

CINNAMON is cheaper to arrive; Ceylon assortment offer at 7d. c.i.f. for August-September shipment.

CITRIC ACID is easier at from 3s. 4d. to 3s. 4½d. per lb. on the spot. At the drug-auction fifty 1-cwt. kegs Italian crystals (Teschemacher's analysis, 0.0006 per cent. lead and 0.0012 per cent. arsenic) of B.P. quality were offered, a bid of 3s. 12d. being refused.

COCA-LEAVES.—The auction to be held at Amsterdam on August 27 will consist of 1,465 packages Java leaf, weighing 76,995 kilos. The exports from Java to Europe during July 1915 amounted to 1,060 packages, against 2,105 packages in 1914. The total exports (January-July 1915) amounted to 14,015 packages, against 18,105 packages for the corresponding period of 1914.

CODEINE remains firm at 22s. 6d. to 23s. 6d. per oz. net for the pure crystals, and 21s. to 21s. 6d. for the phosphate.

COD-LIVER OIL.—Our Bergen correspondent writes on August 2 that the rate of 330s. per barrel f.o.b. Bergen has been actually paid for a small lot of prime non-congealing oil. In London no interest is shown in the market. One agent quotes 330s. c.i.f. for September-October shipment. In the drug-auction 10 barrels good Norwegian (1912 oil) were retired at 300s. per barrel.

COPPER SULPHATE is unaltered at 26s. 5s. per ton for the usual Liverpool brands.

CORIANDER-SEED is dearer at 12s. 6d. to 13s. per cwt. for common to fair Morocco.

CREAM OF TARTAR can be had at the easier rate of 192s. 6d. for supplies of 98-per-cent. powder.

CUMIN-SEED is dearer. A good business has been done at 57s. to 60s. per cwt. for Morocco, but now 60s. to 62s. 6d. is asked.

FENUGREEK-SEED is dearer; 11s. per cwt. is now the quotation, a good quantity having been sold at 10s. 6d.

FORMIC ACID.—Technical (90-per-cent.) in carboys is dearer at 9s. per cwt.

GALLS.—The value of Chinese on the spot is about 60s.; plum-shaped are quoted for August-September shipment at 60s., and ordinary at 52s. 6d. c.i.f. There are buyers of Persian blue at 90s. In the drug-auction 6 bags blue Persian sold without reserve at from 82s. 6d. to 95s.

GENTIAN.—Supplies are coming forward but slowly, and to arrive 33s. c.i.f. is quoted.

GUAIACOL CARB. has become extremely scarce, with sales up to 27s. It is said that exports from Germany have now been prohibited.

HEXAMINE can be bought at 6s. per lb.

LEMON OIL is easier, with spot sellers at from 5s. 3d. to 5s. 6d., and to arrive at from 4s. 10½d. to 5s. c.i.f.

LIME OIL.—For a retail lot of West Indian distilled the extreme price of 9s. has been paid. No arrivals have taken place.

LINSEED is quiet at 59s. to 62s. per quarter for good to fine quality.

LIQUORICE-JUICE.—The agents for the Solazzi brand have been compelled to raise the price by 2s. 6d. per cwt., the value of sticks being 125s. per cwt. and block 110s. per cwt.

LICORICE-ROOT.—Spot supplies are practically cleared; subject to safe arrival, there is an offer of common natural at 37s. 6d. per cwt.; the value of inferior decorticated sticks is about 55s.

MERCURIAL SALTS.—We note the arrival of 43 cases from Italy, which have been sold. Further exports of the salts from Italy have been stopped, but this may only be a temporary measure.

METHYL SALICYLATE is quoted at from 8s. 6d. to 9s. per lb., being firmer.

MORPHINE.—The makers report a good demand on the basis of 13s. 3d. to 13s. 6d. per oz. net for hydrochloride powder.

OILS (FIXED).—*Linseed* is lower on the week, pipes on the spot closing at 24s. 3d. and barrels 25s., forward 26s. 1d. to 27s. 6d. *Cottonseed* is unchanged, at 28s. 9d. for crude in pipes, 31s. for pale refined in pipes, and 36s. to 37s. for sweet refined in barrels—all spot. *Ceylon Coconut* is quiet, at 42s. in hogsheads and 40s. in pipes; *Cochin* is 44s. to 46s.; London pressed is firmer at 33s. to 33s. 6d. *Colza* is easier at 35s. to 36s. for ordinary brown, naked, on spot, and 37s. to 39s. for British refined in barrels. *Lagos Palm* is 31s. spot and 29s. to 29s. 9d. in Liverpool. *Soyza* is lower, 21s. c.i.f. in cases; *Hull* (spot) is 6d. cheaper at 23s. 6d.

OPUM is unchanged on spot at 23s. per lb. for 11-per-cent. Turkey druggists' quality. Persian is also unchanged at from 17s. to 22s., according to test.

PHENACETIN.—The brisk demand has been a feature, and prices have risen rapidly (about 5s. to 7s. 6d. on the week), sales having been made at from 20s. up to 26s. per lb.

POTASH.—*PERMANGANATE* remains nominal at 300s. per cwt., which price may be shaded 2s. 6d.

POTASHES.—First American are quoted 65s. and Montreal at 70s. on the spot for first Government brand.

QUICKSILVER is easier at from 18s. to 18s. 5s. per bottle. We note the arrival of 1,500 bottles from Leghorn.

QUININE has been in good demand, 1s. 6d. per oz. having been freely paid, and 1s. 6d. asked for the usual brands of Continental sulphate. The following figures are from the Board of Trade Returns:

	1913	1914	1915
	oz.	oz.	oz.
Imports, July	50,946	65,957	614,004
Jan.-July	1,467,662	975,527	2,368,446
British Exports, July	211,834	107,966	219,974
* " " Jan.-July	820,797	837,342	1,161,563
* " " July	2,072	6,701	31,500
* " " Jan.-July	247,311	55,829	145,841

* Foreign make.

RESORCIN.—Several parcels have arrived, and others are on the way, but they are all disposed of; sales have been made at 21s. to 22s. per lb. and upwards.

SALICYLATES.—The falling-off in demand noted last week is continued, so that no improvement in price has taken place. Salicylic acid is offered at 14s. 6d. to 15s. and sodium salicylate at 16s. per lb. Very fair arrivals are taking place from the United States.

SALOL has advanced from 2s. to 2s. 6d. per lb., with sales from 19s. 6d. to 21s.

SANTONIN varies from 147s. 6d. to 155s. per lb., according to quantity.

SHELLAC is quiet, but steady, TN Orange selling on the spot on a basis of from 62s. to 63s. for fair, 64s. for good; Orange is worth 80s., and fair free AC Garnet 61s.

SODA CAUSTIC for shipment from U.S.A. is quoted at 20s. per ton f.o.b.

SODA HYPOSULPHITE is steady at 18s. 10s. per ton spot for all crystals.

SULPHONAL is quoted at from 24s. to 25s. per lb., and 26s. 6d. per lb.

SULPHUR is cheaper, flowers offering at 11s. per ton and at 10s. per ton net, ex wharf London.

ARTARIC ACID is offered at from 2s. 2d. to 2s. 3d. per lb. on the spot, being easier.

HYDROL is practically unobtainable, and spot and to come ward from Switzerland 42s. 6d. is quoted.

URPENTINE is the turn cheaper on the week, closing at 5s. 9d. per cwt. for American on spot.

AX, VEGETABLE.—Sellers of Japanese ask 53s. c.i.f. for August-September shipment, being 1s. higher.

London Drug-auctions.

Commercial Sale-rooms, Mincing Lane, E.C., August 12.
large accumulation of goods offered, of which a fair quantity changed hands at and after the sale. Cape aloes were neglected, little of good quality offering. Sumatra aloes was in fair demand at steady rates; Siam is the easiest, being plentiful. Cardamoms are difficult to sell owing to lack of Continental demand. Dragon's-blood

is unaltered: Siam gamboge is very scarce. Honey lower for practically all descriptions, with a fair demand. Rio ippecacuanha is much cheaper; kola realised full prices; menthol lower in auction. Rhubarb slow, and sarsaparilla 2d. cheaper for grey Jamaica, nativo being easier. Tinnevelly sauna brought firm to dearer rates, exciting keen competition. Beeswax slow of sale; white Calcutta dearer.

The next drug-auction will be held a month hence—September 9.

	Offered	Sold		Offered	Sold
Aeonite (Jap.)	7	0	Honey—		
Agar-agar	12	10	St. Domingo	20	4
Albumen (hen)	3	3	Trinidad	40	0
Aloes—			West Indian	90	5
Cape	138	6	Ipecacuanha—		
Socotrine (keg.)	1	*1	Matto Grosso	31	19
Zanzibar	2	0	Miras	3	0
Ammoniacum	8	0	Kamala	15	4
Angelica-root	9	9	Kola	19	19
Annatto-seed	210	0	Lavender-flowers	43	0
Ant eggs (tons)	2	0	Lemongrass oil	1	0
Areca	118	0	Lemon cil.	10	0
Bael-fruit	3	3	Madder-root	15	0
Balsam peru	16	0	Mastich	10	0
Balsam tolu	31	0	Menthol	15	5
Belladonna-root	1	*1	Mint oil (Jap.)	5	0
Benzoin—			Myrrh	29	8
Palembang	66	0	Nux vomica	170	0
Siam	34	4	Olibanum	45	11
Sumatra	205	63	Onion-seed	5	0
Buchu	26	1	Orange-peel	28	0
Calumba	535	60	Otto of rose (vs.)	2	0
Camphor (ref.)	98	40	Quillia (cut)	25	0
Cannella alba	4	0	Quince-seed	7	0
Cannabis indica	33	14	Rhubarb—		
Cantharides	16	0	Chinese	127	2
Cardamoms and			Rose-petals	2	0
seed	453	27	Sandalwood oil (W.I.)	5	0
Cascara sagrada	244	0	Sandarac	9	1
Cashew-nuts	61	29	Sarsaparilla—		
Cassia oil	5	5	Grey Jam.	50	25
Chaulmoogra oil	11	0	Honduras	47	0
Chiretta	8	0	Lima (Jam.)	10	8
Cinchona	239	12	Mexican	25	0
Citric acid (kegs)	30	0	Native Jam.	26	21
Cocaine hyd. (kilos)	10	0	Senega	5	0
Coca-leaves	58	0	Senna and pods—		
Cod-liver oil	10	0	Alex.	40	0
Copaiba balsam	5	0	Tinnevelly	263	256
Croton-seed	14	0	Simaruba-bark	14	0
Cubeb	32	0	Soy	65	0
Cumin-seed	102	0	Squill	20	0
Cuttlefish-bone	55	0	Sticklac	5	0
" " (tons)	2	2	Dill-seed	0	
Dragon's-blood	44	2	Strophanthus	10	5
Elemi	20	20	Tonka-beans	13	0
Ergot	6	0	Tragacanth	32	32
Gatangal	33	0	Turmeric	434	0
Galls	6	6	Turpentine (Venet.)	9	0
Gamboge	4	0	Wax (bees')—		
Guaiacum	21	0	Abyssinian	154	0
Gum acacia	150	5	Curacao	4	0
Henna	19	0	East African	293	4
Honey—			East Indian	235	4
Californian	100	0	Jamaica	23	11
Cuban	297	297	Morocco	69	0
Haytian	164	164	Mozambique	35	4
Jamaican	136	57	Portuguese	37	0
New Zealand	79	0	Spanish	20	0
			West Indian	1	1

* Sold privately.

AGAR-AGAR.—Ten bales No. 2 strip sold at 2s. to 2s. 1d.; for 7 bales No. 1 2s. 2d. was refused, 2s. 3d. being wanted. Privately the market is firmer at 2s. 3d. to 2s. 4d. on spot.

ALBUMEN.—Three cases Chinese hen sold at 2s. 9d., subject.

ALOES.—Very slow of sale; little of good quality Cape offered, 34s. being wanted for bright hard fibres; dull, part drossy, half soft, half hard, sold at 28s. 6d. to 30s. per cwt.

AMMONIACUM.—Four bags good small to bold loose pale tear were held at 75s., and two bags of fair, slightly mixed, at 65s.

ANGELICA-ROOT.—Nine bales of sound, rather chumpy, sold at 61s. per cwt.

ANNATO-SEED.—The recent high prices have induced larger imports, consequently buyers only purchase current requirements; fair dullish East Indian was obtainable at from 7s. 6d. to 8d.

BAEL FRUIT.—Three bags of ordinary broken slices sold without reserve at 2d. "if pay charges."

BALSAM TOLU.—For unsorted, fairly hard, part drossy, 1s. 9d. per lb. was wanted.

BENZOIN.—In fair demand. Twenty-two cases of good Sumatra seconds, well packed with small to bold white almonds, and well-developed storax flavour, sold at 8l. 5s. per cwt., and 18 cases not quite so good realised 8l. to 8l. 2s. 6d.; five cases ordinary seconds realised 6l. 5s. A case of fair Sumatra seconds of old fracture realised 7l. 10s. without reserve, and for three cases of crosscut 6l. 2s. 6d. to 6l. 10s. was paid. Siam is plentiful and on the easier side; for extra bold to bold free pale good-flavoured Siam almonds a bid of 28l. per cwt. is to be submitted; four cases small Siam almonds in hard block sold at 10l.

BUCHU.—The limits for fair slightly yellowish to good green round were from 4s. 6d. to 4s. 8d.; longs were held at from 3s. 8d. to 4s., and ovals at from 2s. 4d. to 2s. 6d.; a bale of green stalky ovals sold at 2s. 5d.

CAMPHOR (REFINED).—Fifteen cases of Japanese 2½ lb. slabs sold at 1s. 7½d. per lb., but 25 cases, sold without reserve, went at 1s. 5½d.

CANNABIS INDICA.—Twelve bags inferior African sold at from 1s. 4d. to 1s. 5d., and sweepings at 6d.

CANTHARIDES.—Good fair Chinese are obtainable at 11s. per lb., probably a shade less.

CARDAMOMS were practically a dead letter, and where sold lower prices were accepted. Extra bold round pale Mangalore sold at 5s. 9d. to 5s. 11d., good bold ditto 5s. 3d. to 5s. 5d.; Mangalore seed, 2s. 6d.; fair medium Ceylon-Mysore, 3s. 4d.; small ditto, 2s. 2d.; seed, 2s. 6d.; split seed, 2s.

CASHEW-NUTS.—A lot of 29 cases, very badly infested with weevil (unfit for human consumption), sold at 9s. per cwt. without reserve; blanched were bought in at 51s.

CASSIA OIL.—Five cases 74.75 per cent. c.a. sold at 2s. 7½d. without reserve.

COCAINE.—Ten kilos. hydrochloride (Brunswick brand) were bought in at 13s. 6d. per oz.

CUBEBES.—Fair, rather stalky Singapore were limited at 8l. per cwt.

CUTTLEFISH-BONE.—Good clean pale E.I. sorts are obtainable at 8d. per lb., being slightly easier than the previous asking price. Two tons of small inferior sold at 5s. per cwt.

DRAGON'S-BLOOD.—Reboiled lump was held at 18l. 10s., but quality is not prime; two cases pickings from reboiled sold at 7l.

ELEMEL.—Twenty cases (of which no sample was on show on Wednesday) sold at 54s. per cwt., being dearer.

ERGOT.—Sound Portuguese and Russian was offered at 2s. 2d. per lb. net.

GAMBoge.—No Siam offered. Four cases inferior Saigon pipe were retired at 70s. per cwt.

GUAIACUM.—A lot of 21 packages low drossy offered without reserve, but elicited no competition.

GUM ACACIA.—Five casks Mogador-Amrad sold at 35s. 6d.

HONEY.—Importers meeting the market, a fair quantity was disposed of at lower prices all round, including 297 packages Cuban at a reduction of 3s. to 4s. per cwt., including fair to good pale liquid in cases at 29s. to 31s.; ice pale liquid in 5½-cwt. casks 31s. to 32s., fair 27s. to 3s., very dark liquid 23s. Haytian also sold cheaply, including good clear liquid 32s. to 33s., pale set and setting 24s. to 26s. 6d., inferior dark 23s., fair liquid amber 25s. 6d. to 27s., good clear amber 32s. to 33s., low dark liquid 19s. of Jamaica, sales of fair dullish liquid were made at 32s. to 34s., good red liquid 35s. to 36s. 6d., and good clear liquid at 39s. Nineteen casks San Domingo offered, and four sold at 34s. for good pale setting, and 30s. for very dark liquid; a few casks of inferior Curacao sold at 28s.

IPÉCACUANHA.—Matto Grosso is from 1s. to 1s. 9d. per lb. cheaper; at the opening out of the auction 2 bales of fair bright sound, rather lean, sold at 13s. 9d., subject, and a bale of good, but slightly mouldy, went at 13s. 9d. Towards the close of the auction 13s. was accepted for fair bold, and 15 bales of slightly mouldy to mouldy went at from 10s. to 10s. 7d. (one lot 11s.) grease-damaged 10s. 3d. to 10s. 6d., and sea-damaged 11s. 3d. Minas pickings were limited at 10s. 6d. Forty bales of East Indian were catalogued, but had not arrived in time; they will be offered in the brokers' sale-room on Tuesday at 2.30 p.m. Since the outbreak of war between 750 and 800 packages of ipécacuanha have arrived in London.

KOLA.—Seven bags fair dull Jamaica halves sold at 6½d. to 6½d., and 12 bags fair Java went at 6½d., small dull halves at 6d., and pickings at 5d., being very full prices. In Liverpool sales of dried African have been made at 4d. ex store.

MENTHOL.—Five cases "Yazawa" crystals sold without reserve at 8s. per lb. A further 10 cases offered, and a bid of 8s. 3d. was refused, the lot being retired at 8s. 9d.

MYRRH.—Eight barrels bold darkish peas sold at 33s. 6d. to 34s. per cwt.

OLIBANUM.—Eleven cases of blocky and dusty siftings sold at 17s.

QUINCE-SEED.—The value of fair Cape is 2s. 2d. per lb. RHUBARB.—Quiet. A case of good bold Shensi pickings sold at 3s. 5d. per lb. Medium to bold flat High-dried was limited at 1s. 3d., to 1s. 5d., and horny High-dried at from 9d. to 9½d. per lb.

SANDARAC.—Fair Mogador was held at 80s.; grey dust at 25s.

SARSAPARILLA.—Grey Jamaica sold at a reduction of 2d. per lb., 25 bales being disposed of at 1s. 9d. (three bales) to 1s. 10d. for fair fibrous. Native-Jamaica was also on the easier side, five bales dullish red selling at 1s. 1d. and good red at 1s. 2d., and towards the close of the auction 16 bales sold at 1s. to 1s. 1d. for dull to fair red; eight bales Lima-Jamaica sold at 1s. 8d. for good.

Senna.—Tinnevelly sold at very firm to higher rates, inferior small and medium brown leaf realising from 7½d. to 8d., middling greenish at 8½d. to 8½d., and good greenish 9d. per lb. Pods sold at from 4d. to 4½d. Eight bales Mecca pods sold at 5d. per lb. for dark.

STROPHANTHUS-SEED.—Five bags fair greenish sold at 1s. 6d. per lb.

WAX BEES.—Quiet. Of Jamaica, 11 packages sold at 8l. 2s. 6d. for dark to fair brown, being steady. Holders of bleached Calcutta ask 9l. 2s. 6d. for ordinary dull, no good, being on offer: a bid of 9l. is to be submitted for dull. Four cases small clean pale Mozambique ball sold at 7l. 2s. 6d.

American Drug and Chemical Markets.

New York, July 31

A perusal of various reports issued by American houses shows that there is a great scarcity of antipyrin, soda hyposulphite, resorcin, coumarin, chloral hydrate, bismuth salts, and bromides.

ACETANILIDE is quoted at from 75c.; some people are "bearing" the market, but there does not seem much justification for it.

BALSAMS.—Genuine Peru remains very firm at from \$4.00 with sales thereat. Tolu is slow at 40c. to 42c., and Copiba is unchanged and also slow, at 35c. for genuine South American and 32c. for U.S.P.

BELLADONNA-LEAVES are extremely scarce, and held at \$1.2 nominally.

BISMUTH SALTS.—There is a heavy demand for the principal salts, but makers are only able to accept orders for small lots, and are much behind with deliveries. Metal is practically unobtainable.

BROMIDES.—Second-hands ask \$1.85 for potassium and \$1.75 for sodium in a jobbing way.

BUCHU-LEAVES are cheaper at \$1.10 for short and \$1.00 for long.

COD-LIVER OIL.—No offers of Norwegian below \$75 per barrel. Newfoundland has been sold at \$60.

EPSOM SALT.—Large exports have been made at comparatively high prices, including 4c. per lb. f.o.b.

IPÉCACUANHA.—Very quiet, Cartagena offering at \$2.00 per lb.

MENTHOL.—Very dull, and prices shaded to \$2.50.

METHYL SALICYLATE is quoted at from \$1.50 to \$1.60 per lb. in a retail way.

PHENACETIN.—Business has been done at \$5.00 per lb. and market is very strong.

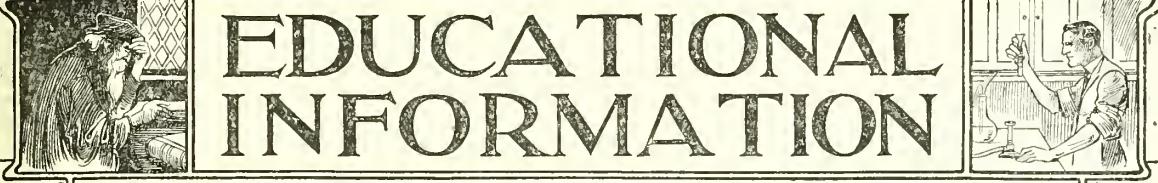
QUICKSILVER.—Some sellers ask \$100 to \$105 per flask some arrivals have taken place from Italy.

QUININE.—An export inquiry for 100,000 oz. is noted, b makers are limiting sales to 500-oz. lots, and the outlook towards an advance.

THYMOL has been rather more freely offered, and the price has been reduced to \$10 to \$11 per lb.

DURING THE FOUR MONTHS ended April 20 the imports of drugs, chemicals, and apothecaries' wares into British South Africa amounted in value to 309,000*l.*, against 327,000*l.* the corresponding period of 1914.

FOREIGN TRADE IN JULY.—Our imports from overseas continue to show a large increase. July trade returns show an excess of 16,172,000*l.* compared with July 1914; exports on the other hand, were down by 9,684,000*l.*, reduced shipments of manufactured goods being mainly responsible for the falling off. Transhipment trade was, however, better last month than in the month immediately preceding the outbreak of war, a net gain of 1,582,000*l.* being recorded. The chemical-trade is still very active, imports being 432,500*l.* more at 1,643,500*l.*, and the exports improved 474,183*l.* to 2,000,300*l.* Over 4½ millions' worth of seeds, nuts, fats and gums were imported, being 573,310*l.* more. Medicine exports attained 290,000*l.*, or about 75,000*l.* more.



EDUCATIONAL INFORMATION

Learning by study must be won, 'twas ne'er entailed from sire to son.



Introductory.

Preliminary Examinations.

THE first of our editorial articles this week deals with the remarkable change which has occurred in all Professional Preliminary examinations, and the remarks should be read with the present observations. Of the four Preliminary examinations here dealt with, the order in which they run from the lowest standard upwards is as follows: Pharmaceutical, veterinary, medical, and scientific; and in that order we give details regarding them.

PHARMACEUTICAL PRELIMINARY.

THE CHEMIST AND DRUGGIST has always advocated a high standard of general education, and for many years we have urged pharmaceutical students to make the London Matriculation examination their goal. As a rule our advice has not been taken in the past, and it is not being taken now. So rarely, indeed, does the budding pharmacist take the London "Matri." that any effort to turn students from the path of least resistance seems to be labour thrown away. It will be observed from the following figures, for which we are indebted to Mr. W. J. Uglow Woolcock, Secretary of the Pharmaceutical Society of Great Britain, that in the last hundred registrations of pharmaceutical students for 1914, only one "Matri." certificate was tendered, and it is more than probable that very few of the candidates passed an examination equivalent to the "Matri." Of the following classes of certificates, the first four may be held to represent English students, the next Welsh students, and the two following lasses students from Scotland :

Analysis of the Last 100 Registrations of Pharmaceutical Students for the Year 1914.

College of Preceptors	...	...	...	52
Oxford Local	...	...	...	10
Cambridge Local	...	...	...	9
Joint Matriculation Board	...	...	...	1
Central Welsh Board	...	...	...	9
Scotch Educational Department	...	...	...	12
Educational Institute of Scotland	...	...	...	6
University of Ireland	...	...	...	1

From these figures it is obvious that the College of Preceptors is the favourite examination in England, though it does not follow that it is the lowest standard of those accepted. The Welsh students and most of those from Scotland appear to come direct from school, and this is as it should be. It is to be hoped that the time will soon come when the standard of education of all boys leaving the secondary schools will be such as will permit their going forward for the various professions without further examination, but we have not yet reached that point, and hence *ad hoc* examinations require still to be held. Further, we are informed that the majority of the students who present Leaving certificates are content to take the very lowest standard accepted by the Pharmaceutical Society, and this standard is considerably below that required by the medical licensing bodies.

COLLEGE OF PRECEPTORS.

This institution holds examinations for Senior and Junior certificates, and an Intermediate Professional Preliminary examination, all of which are accepted by the Pharmaceutical Society. The dates of the next examinations are: Senior and Junior, December 6, 1915; June 26 and December 4, 1916; Professional Preliminary, specially for medical students, September 7, 1915, and March 7, 1916. The entrance fee for the Junior Certificate examination is 17s. 6d. Further particulars apply to the College of Preceptors, Finsbury Square, London, W.C.

EDUCATIONAL INSTITUTE OF SCOTLAND.

Examinations specially for the requirements of pharmaceutical students are held by the Institute in January, April, July, and September in Edinburgh, Glasgow, London, Liverpool, and Dublin, and in January and July in Aberdeen and Dundee. The fee for examination is 1*l.* for the first examination and 10*s.* for any subsequent examination. Forms of application may be obtained from Mr. Hugh Cameron, M.A., 34 North Bridge, Edinburgh.

The subjects of the above examinations are English, arithmetic, algebra, geometry, and two languages, which may be Latin, French, or German, and the six subjects must be passed at not more than three examinations.

VETERINARY PRELIMINARY.

The subjects of examination are English (including history and geography), mathematics (including arithmetic, algebra, and geometry), and two foreign languages, classical or modern. Up till this year Latin was compulsory for all veterinary students, but the pressure of the modern spirit has compelled acceptance of what will soon be the universal rule. The Educational Institute of Scotland holds examinations at the same times and places as for the Pharmaceutical Preliminary, and the two examinations are much alike, save that history and geography are not required in the Pharmaceutical examination. The latter also may be passed at three sittings, while in the Veterinary all the subjects must be passed at one examination. The same regulations hold good for the College of Preceptors' Junior examination, but all the other certificates accepted by the Royal College of Veterinary Surgeons may have been obtained at not more than two examinations.

MEDICAL AND DENTAL PRELIMINARY.

For all British Universities, with the exception of London and Leeds, and for registration by the General Medical Council as a medical student, English, mathematics, and Latin are compulsory subjects, and one optional subject is required. For London and Leeds Universities only English and mathematics are compulsory, and two optional subjects are allowed. In the London Matriculation examination all the subjects must be passed at one examination; in all the others the subjects may be passed at not more than two examinations. The Welsh University regulations are slightly different, there being four compulsory subjects—Latin, mathematics, English language, and history of England and Wales—and two optional subjects. The College of Preceptors holds a special Professional Preliminary examination twice a year, March and September, in addition to the examinations for the Senior Certificate; and the Educational Institute of Scotland holds a special Medical Preliminary examination at the same times and places as the Pharmaceutical Preliminary, a fee of 1*l.* being charged for each examination.

SCIENCE.

The Preliminary examination for graduation in science is of a higher standard than that required for medicine, and the Matriculation examination of the University of London may be taken as the example. In English and mathematics, in particular, the range is much wider, while in the languages all the work is "unseen"—that is, no books are previously prescribed. For the London Matriculation three examinations are held each year—namely, January, June, and September—and the examination fee is 2*l.* For particulars relative to the examination communications must be addressed to the Registrar, University of London, South Kensington, S.W.

Students who may desire to prepare at home for any of the examinations referred to above cannot do better than obtain Dodds' "Complete Guide to Preliminary Examinations," of which the fourth edition, thoroughly revised and brought up to date, has recently been issued by THE CHEMIST AND DRUGGIST.

Pharmacy.

In order to become a chemist and druggist, with permission to use the title "pharmacist," in

Great Britain,

it is necessary to comply with the requirements for registration prescribed by or under the Pharmacy Acts, 1852 to 1908, and administered as to examination and registration by the Pharmaceutical Society of Great Britain, 17 Bloomsbury Square, London, W.C. Full particulars of the examinations are contained in a pamphlet, obtainable free from the Registrar of the Society, and it is advisable that the aspiring pharmacist should obtain this early in his career, so that he may know exactly the requirements for entrance to the Qualifying examination. These requirements are, broadly :

1. The candidate must have passed an approved Preliminary examination and be registered as an apprentice or student of pharmacy.

2. He (or she) must, on entering for the Minor or Qualifying examination, be twenty-one years of age, and must produce a declaration that he has been practically engaged in the translation and dispensing of prescriptions for three years prior to applying for admission to the examination.

Registration.

Persons desirous of being registered as apprentices or students must deliver to the Registrar, 17 Bloomsbury Square, London, W.C. : (1) a certificate of having passed any one of the examinations specified below, and (2) a registration-fee of 2*l.* 2*s.* No certificate may be accepted by the Registrar unless English, arithmetic, algebra, and geometry are included in the examination for which the certificate is granted, and unless, in addition, two optional subjects are also included. The Council advises that one of these optional subjects should be Latin, but other subjects, such as a modern foreign language and bookkeeping, may also be offered. The six subjects must have been passed at not more than three examinations of the same examining body. The list of certificates which the Registrar is authorised to accept for the registration of apprentices or students (subject in all cases to the specified conditions as to subjects and number of examinations) is as follows :

University of Oxford: Junior or Senior Local Examinations; Higher Local Examinations; Responsions.

University of Cambridge: Junior or Senior Local Examinations; Higher Local Examinations; Previous Examinations.

University of London: Matriculation Examination; Higher School-leaving Certificate; Junior School Examination; Senior School Examination.

University of Durham: Junior or Senior Local Examinations; Certificate of Proficiency Examination.

University of Birmingham: Matriculation Examination; Junior School Examination.

Universities of Manchester, Leeds, Liverpool, and Sheffield: Joint Matriculation Examination; Senior School Examination; Junior School Examination.

University of Bristol: Matriculation Examination.

Universities of Edinburgh, Aberdeen, Glasgow, and St. Andrews: Preliminary Examination in Arts, or Medicine, or Sciences; Junior and Senior Local Examinations.

National University of Ireland: Matriculation Examination.

University of Dublin: Public Entrance Examinations (for "High Places").

Royal University of Ireland: Matriculation Examination.

Royal University of Belfast: Matriculation Examination.

University of Wales: Matriculation Examination.

Scotch Education Department: The Intermediate Certificate or Passes in the Higher or Lower Grade of the Leaving Certificate Examination.

Intermediate Education Board for Ireland: Senior or Middle Grade Certificate Examination.

Central Welsh Board: Honours; Senior or Junior Certificate Examination.

Oxford and Cambridge Schools Examination Board: Higher or Lower Certificate Examination.

Educational Institute of Scotland: Medical Preliminary Examination; Professional Preliminary Examination.

College of Preceptors: Senior or Junior Certificate Examination.

The Registrar is not empowered to accept certificates of having passed in the six required subjects at an examination of any examining body not included in the above list, or certificates taken at more than three examinations, but such certificates may be submitted for the consideration of the Council, and each individual case

will be considered on its merits. It is advisable that registration as a student or apprentice should be effected prior to entering upon the three years' pupilage, but this is not compulsory. No candidate is admitted to the Minor examination who has not previously been registered as an apprentice or student.

Apprenticeship.

The second condition of entrance to the Minor examination—viz., that the candidate has been "practically engaged in the translation and dispensing of prescriptions for three years"—means, in practice, a three years' apprenticeship. It is customary that this apprenticeship should be with a registered chemist and druggist or pharmaceutical chemist, but the training may be obtained in a hospital, doctor's dispensary, or other place where the dispensing of physicians' prescriptions is done, provided the necessary certificate is signed by a chemist and druggist, pharmaceutical chemist, or a registered medical practitioner. Incidentally it may be noted that pharmaceutical chemists in Great Britain are *de facto* chemists and druggists, the Minor examination being a stage to the qualification of pharmaceutical chemist. Assuming that the candidate has entered on his apprenticeship, he should begin to acquaint himself, by reading, with the subjects of his daily work, which are approximately the subjects of the examination. This is a matter which should be strongly impressed on the apprentice, as it is too frequently neglected, with the result in many cases that, owing to the lack of a little theoretical knowledge, the student is unable to take full advantage of the practical experience provided by the routine shop-work. In most cases the employer will be willing to assist in mapping out a course of study, which should be carefully graded, so that theoretical knowledge and practical work in the pharmacy may go hand in hand. Much purposeless reading and study may thus be avoided, especially if the employer undertakes to explain to his apprentice the various pharmaceutical operations which he carries out in the course of his work. In most cases the student is within reach of a technical school, and classes in physics, chemistry, and botany are available at most of these institutions. Some technical schools now conduct special courses for pharmaceutical students, including classes in dispensing and *materia medica*. Where, however, such facilities are not available the student should not be discouraged, as much useful work can be accomplished by private study. For the benefit of those students who are unable to obtain such guidance or tuition as we have indicated, we append an outline of a course of study which may profitably be followed during a four years' apprenticeship, and we indicate the text-books which are likely to prove most useful for private study :

LATIN AND PRESCRIPTION-READING should be undertaken early in the career of the pharmaceutical apprentice, and in view of the fact that Latin is not now a compulsory subject in the approved Preliminary examinations (but it is included in the Minor examination), this is even more necessary than formerly. It is frequently a subject to which pharmaceutical students pay too little attention, forgetting the fact that once properly acquired, the knowledge easily kept up, and that it carries the same number of marks in the Minor examination as the other subject. Full marks in this subject may easily turn the scale in favour of a candidate who is weak in one or more of the other subjects. The apprentice should endeavour to work carefully through a book such as Bennett's "Medical and Pharmaceutical Latin for Students of Pharmacy and Medicine" (p. 58) in the first year of his apprenticeship, and should revise the whole subject from time to time until he has passed the "Minor."

DISPENSING AND PHARMACY should also be undertaken in an early stage, and, as far as possible, the student's reading and practical work should be arranged to form a continuous curriculum throughout apprenticeship. Suitable books for the study of pharmacy are Lucas's "Practical Pharmacy" and the British Pharmacopoeia (p. 58). In dispensing, the apprentice may commence by reading Ince's "Elements of Dispensing Practice," and should follow this up with "Art of Dispensing" (p. 58). Practical pharmacy and dispensing naturally form part of the daily work of the

apprentice, who should never lose any opportunity which presents itself for dispensing or making pharmaceutical preparations. An important point in the study of pharmacy is to constantly observe the general appearance, consistency, colour, viscosity, and relative weights of pharmaceutical preparations.

CHEMISTRY AND PHYSICS.—Chemistry is one of the most important of the scientific subjects on which the practice of pharmacy is based, and the apprentice should commence this subject during his first year. It is not an easy subject to study without assistance or guidance, but, fortunately, an excellent elementary text-book is available in Walker's "Elementary Inorganic Chemistry" (p. 58). If the student works through this book during his first two years, he will have laid a good foundation, and may then take up a more advanced book, such as Senter's "Text-book of Inorganic Chemistry" (p. 58), to which he should devote the last two years of his apprenticeship. Practical work should not be neglected, and the student should begin by making simple inorganic salts, for which full directions will be found in Perkin's "Practical Inorganic Chemistry," after which he should undertake the qualitative analysis of simple salts. After a little experience in this he will be able to take part in the excellent exercises in qualitative analysis given periodically in the "Corner for Students" of *THE CHEMIST AND DRUGGIST*. The best book in qualitative analysis for the private student is Perkin's "Qualitative Chemical Analysis, Organic and Inorganic" (p. 58). Contemporaneously with elementary chemistry the student should undertake some reading in elementary physics. A suitable book for this is Brigg's "General Elementary Science."

BOTANY.—The study of this fascinating subject should be commenced in the first summer of apprenticeship, and could be continued throughout apprenticeship. A suitable book for a beginner is Edmonds' "Elementary Botany" (p. 58), and during the first summer the student should devote his attention to elementary morphology, as exhibited in a few of the more common British natural orders, and simple physiology. The study should be practical as far as possible. A hand-lens should be constantly in use, and the student would do well to collect and mount on cards suitable specimens of the more common plants, particularly those given in the Minor syllabus for recognition. In the succeeding years the student may extend his reading to more advanced morphology, physiology, and classification, and in the final year anatomy and histology may be undertaken. A microscope is almost essential for the study of histology, but, if it is not available, a good general knowledge of anatomy can be obtained by the use of a hand-lens, and this will be of the utmost value when the student enters a school of pharmacy. A suitable book for more advanced study is Johnson's "Text-book of Botany" (p. 58), and its use in field work John's "Flowers of the Field" (p. 58) is probably the most satisfactory.

MATERIA MEDICA may be taken up in the third year of apprenticeship, when the student has gained some knowledge of botany and is familiar with the names and appearance of the more important drugs. This also should be made a practical study. The drugs should be compared carefully with the text-book description, and suitable lessons should be made and examined by the aid of a hand-lens. Particular attention should be paid to the commerce of drugs, their contaminations and adulterants, and the student should endeavour to become a judge of quality. Too much stress should not be laid on the chemistry of drugs until the student is sufficiently far advanced in chemistry to appreciate this. It will be sufficient, in the first instance, to gain a knowledge of the *nature* of the constituents of the various drugs—i.e., whether alkaloidal, glucosidal, resinous, or otherwise.

ORGANIC CHEMISTRY.—The student should not attempt to take up this subject until he has a fair general knowledge of organic chemistry, and should therefore leave it until the last year of apprenticeship. He may then read selected chapters of Cohen's "Theoretical Organic Chemistry."

When apprenticeship is finished, the student should take a situation as junior assistant, preferably in a good dispensing business, for one or two years. He should continue his studies, either privately or at evening classes, until he is ready for the final preparation for

The Minor Examination.

The Council of the Pharmaceutical Society recommends that all candidates before presenting themselves for this examination should receive a systematic course of instruction occupying a period of at least six months, including at least sixty lectures in chemistry, eighteen hours' work per week in practical chemistry, forty-five lectures and demonstrations in botany, and twenty-five lectures and demonstrations in *materia medica*. Particulars of

the schools of pharmacy follow this (p. 54). If the student has studied systematically during apprenticeship he should not require a full six months' course.

The Minor examination is conducted by the Board of Examiners for England and Wales which meets in London, and by a similar Board for Scotland meeting in Edinburgh. The examinations are oral and practical, and as nearly as possible the same.

The examinations are held in January, April, July, and at the end of September or the beginning of October in each year, and each candidate must give notice and pay the fee of ten guineas to the Registrar, 17 Bloomsbury Square, London, on or before the 15th day of the month previous to that in which the examination is held. When giving notice for the first time the candidate must have attained the full age of twenty-one years, and is required to produce a registrar's certificate of birth, and the certified declaration that for three years he has been practically engaged in translation and dispensing of prescriptions. The printed form on which this declaration is to be made can only be obtained from the Registrar. Candidates who fail can enter for the next or any subsequent examination on payment of a fee of three guineas. At the time of giving notice each candidate must state whether he desires to be examined in London or Edinburgh. The choice of venue is usually determined by the place at which the candidate studies or the recommendation of his teacher. Each candidate receives due notice of the date on which he is required to present himself for examination.

SUBJECTS OF THE EXAMINATION.

BOTANY.—(a) *Classification.*—The main divisions of the vegetable-kingdom—viz., Thallophyta, Bryophyta, Pteridophyta, Gymnosperms, and Angiosperms, and their chief distinguishing features; the classes and sub-classes of the Angiosperms, and the description of flowering plants in technical language. A list of about fifty British plants is given for recognition. (b) *Morphology (including Autotomy).*—The external forms of plants, homology and analogy; buds, branching and branch systems, leaves and their arrangement on the stem, the inflorescence, flower, and fruit; a general acquaintance with the anatomy of plants, and recognition of sections by the aid of the microscope. (c) *The elementary facts connected with the physiology of plants, and the nature of the chief plant constituents; the manner in which plants grow and the effect of external stimuli upon them; sexual and asexual reproduction.*

CHEMISTRY AND PHYSICS.—An elementary knowledge of: (a) The physical laws (including simple problems relating to the weight and volume, under different conditions of temperature and pressure, of elements and compounds concerned in chemical reactions). (b) Elements and compounds; the chief characteristics of chemical action; chemical combination; atomic and molecular weights; chemical formulae, nomenclature, and notation; valency; the difference between metals and non-metals. (c) The non-metals, their general characters, preparation, and the typical reactions of non-metallic elements and their compounds, and the impurities of such of them as are used in pharmacy. (d) The metals, their isolation; the methods of preparation and properties of oxides and salts; the adulterations and impurities of the official salts. (e) Carbon compounds of importance in pharmacy, the methods of preparation and their mutual relationships; the detection and estimation of elements in organic compounds, and the determination of molecular formulae. *Practical Examination.*—Determination of specific gravities; use of the thermometer and barometer; recognition of the more important elements and compounds by tests; qualitative analysis of a mixture containing not more than two basic radicles and two acidic radicles; the identification of certain organic compounds; volumetric determinations described in the British Pharmacopoeia; the use of the balance and the imperial and metric systems of weights and measures; the assay processes of the British Pharmacopoeia; the preparation of certain official inorganic and organic compounds.

MATERIA MEDICA.—Recognition of the crude drugs of the British Pharmacopoeia and in the list given in the syllabus, their botanical and geographical sources, natural orders, commercial varieties, methods of collection and preparation for the market, morphological nature, chief active constituents and their nature and percentage usually present; also a practical knowledge of the pharmacopoeial tests and assay processes applied to crude drugs or their official products.

PHARMACY.—(a) Operations requiring the use of heat. (b) Disintegration of solid substances; the nature of solution, the solvent power of various liquids, and the influence of specified conditions; the processes by which the official preparations are made; and the proportion of active ingredient or crude drug in the more potent of the official preparations. (c) The principles involved in the dispensing of medicines. (d) A knowledge of the law as regards the sale (by retail and wholesale) of scheduled poisons and of the schedule itself, the dispensing of poisons, and the regulations for the sale of arsenic. *Practical Pharmacy and Dispensing* includes the making of pharmacopoeial preparations and the compounding and dispensing of medicines (B.P. 1914).

PHARMACEUTICAL LATIN AND PRESCRIPTIONS.—The reading of autograph prescriptions in English or Latin, and rendering into good Latin prescriptions written in English; a knowledge of posology and pharmaceutical calculations.

The subjects are set out more fully in the official pamphlet obtainable from the Registrar, also in "Minor Experiences," a book published at 2s. 6d. (by post 2s. 8d.) at the

Offices of THE CHEMIST AND DRUGGIST, which is a most useful guide to all who are preparing for the examination as it contains more than fifty descriptions of the examination by Edinburgh and London candidates.

The examination extends over two days, the practical portion of the chemistry and pharmacy and dispensing being taken on the first day. If the candidate is unsuccessful in these subjects, he or she is not called upon to attend the second part of the examination. If successful in the practical work, the candidate is notified of the date of the oral examination in the rest of the subjects.

The Major Examination.

This examination was instituted by the Pharmacy Act, 1852, for the title pharmaceutical chemist, and originally it was intended that it should be the qualification for all engaged in the business of pharmacy on their own account; in fact, the same Act instituted the Minor examination as one for assistants. The best-laid scheme of our pharmaceutical progenitors went wrong, however, but not as regards the standard of qualification, for the Major examination of 1852 was elementary compared with the Minor examination of to-day, while the present Major examination has been robbed of the pharmacy which characterised the original. The examination is open to all candidates who have passed the Minor, on payment of a fee of 3*l.* 3*s.* Examinations are held in April and July only, in Edinburgh and London, and candidates must enter for it not later than the 15th of the preceding month. The examination extends over three days, and includes chemistry, physics, *materia medica* and pharmaceutics, and botany of a more advanced type than that of the Minor syllabus. The examination is a written one, including also practical work in chemistry, botany, and *materia medica*. Heat and light, electricity and magnetism, taxonomy, the detection of adulterants in entire and powdered drugs by the microscope, gravimetric analysis, gasometric analysis, alkaloidal assays, and the chemistry of carbon compounds are the chief subjects, of which a much more advanced knowledge is required than in the Minor examination. The greater benefit of studying for the Major examination consists in the acquirement of the extra knowledge, which enables one to deal more efficiently with the scientific side of pharmacy. Our experience is that the Major diploma is a good business asset to the young man who desires to get on in the drug-trade, and who has to rely chiefly upon his own efforts to do so. The Major should be taken soon after passing the Minor examination, as the syllabus is largely an extension of that of the Minor requirements.

British Colleges and Schools of Pharmacy.

While the training undergone by the aspirant for the Minor certificate during apprenticeship or assistantship, either at technical schools or privately, forms a good groundwork, practically every candidate finds it essential to take classes at a school of pharmacy or some institution which specialises in pharmaceutical subjects. Particulars of the courses, fees, etc., at these special schools and institutions are given below, but it is as well to procure a prospectus and further particulars from the principal or secretary of more than one school or institution before making a final selection.

Robert Gordon's Technical College, Aberdeen.

Teacher of the School of Pharmacy: Mr. Gilbert Simpson, Ph.C. A short course begins on August 30; fee, 3*l.* 3*s.*, or 8*l.* 8*s.* with succeeding term. Ordinary terms commence on October 4, January 4, and April 3; fees, 7*l.* 7*s.* and 6*l.* 6*s.* per term, after the first. Major course (practical work only) costs 3*l.* 3*s.* per term. Evening classes (Mondays, Tuesdays, and Thursdays) begin on October 4; fees, 10*s.* 6*d.* to 1*l.* 1*s.* per subject.

Bath and West of England College of Chemistry and Pharmacy.

6 Cleveland Place East, Bath.

Principal: Mr. David J. Williams, Ph.C., F.C.S. A course for the Minor, including foundation course, starts on September 8; fee, 9*l.* 9*s.* The fee for the January or April term is 8*l.* 8*s.* Rapid revision course (with extra evening practical work) for the October examination starts

on August 23; fee, 5*l.* 5*s.* Evening classes are held; fee 17*s.* to 2*l.* 10*s.* 6*d.* Major courses, three months 7*l.* 7*s.* and six months 13*l.* 13*s.* Apothecaries' Assistants' course six months 9*l.* 9*s.* three months 5*l.* 5*s.* Preparatory post-
tuition for Minor, Major, Scholarships, Preliminary examinations, and Apothecaries' Hall Certificate; fees, for 17*s.* to 5*l.* 5*s.* There are special classes and rooms for ladies. A new illustrated prospectus is now ready.

Birmingham Municipal Technical School, Suffolk Street, Birmingham.

Principal: Mr. W. E. Sumpner, D.Sc., M.Inst.C.P. Pharmacy class on Wednesdays from 2.30 to 5.30 p.m. The sessional fee is 5*s.* for the first year, 7*s.* 6*d.* for the second, and 10*s.* for the third. The C. J. Woodward Memorial Prize of 3*l.* 10*s.* is awarded for the best student of the second year. Secretary: Geo. Mellor.

Birmingham and Midland College of Chemistry, Pharmacology and Botany,

45 Newhall Street, Birmingham.

Principal: Mr. G. L. Scott, Ph.C. Courses for the Minor start on October 5 and early in January, April, and July; fees, three months 8*l.* 8*s.*, six months 15*l.* 15*s.*, nine months 21*l.* A short course for the October Minor begins August 17. Afternoon and evening classes are also held. Instruction is also provided for the Major and for the Apothecaries' Hall examinations.

Blackburn Technical School,

A two-years' day course in chemistry, physics, and botany is provided specially for pharmaceutical students. Evening classes are also available.

Bradford Technical College.

Principal and Head of Department: Professor W. Gardner, M.Sc., F.I.C. The Minor course extends over three terms (day), the lectures in *materia medica*, pharmacy, and botany being given in the evening class, or the days (evening and day). Fees, 5*l.* 10*s.* (day course) and 21*s.* (evening course, including one or two half-days weekly). A course for the Assistants' examination of the Apothecaries' Hall is available at similar fees.

Brighton Technical College.

Principal: Mr. W. Becket Burnie, D.Sc. Day and evening classes in the Minor examination subjects are arranged. Fees, 5*s.* to 7*s.* 6*d.* per subject.

Merchant Venturers' Technical College, Bristol.

Classes for Minor students are held on Monday, Tuesday, and Friday evenings, commencing September 20. Fees, 7*s.* 6*d.* to 10*s.* per class.

Bristol University.

University Registrar: Mr. James Rafter, M.A. Courses including chemistry, botany, pharmacy, and *materia medica* can be obtained. Mr. O. C. M. Davis, D.Sc., F.I.C., Ph.C., lectures on *materia medica*. The session opens in September.

Derby Technical College.

Principal: Mr. F. W. Shurlock, B.A., B.Sc. Mr. Taylor, Ph.C., provides the tuition in pharmacy and *materia medica* on Wednesdays; fee, 17*s.* per term. Chemistry and botany classes are also available.

Dundee Technical College.

Special evening instruction in chemistry and botany for pharmaceutical students is available, the course covering four years.

Heriot-Watt College, Chambers Street, Edinburgh.

Principal: Dr. A. P. Laurie, M.A., F.I.C. Lectures in pharmaceutics: Mr. William Duncan, Ph.C., F.C.S. The pharmaceutics class is held on Tuesday evenings; fees, 5*s.* There are also classes in chemistry and botany suitable for pharmaceutical students; fees, 5*s.* to 17*s.*

Edinburgh Central School of Pharmacy, 25 Clyde Street, Edinburgh.

Principal: Mr. W. Beaverley Cowie, Ph.C., F.I.C. assisted by Mr. A. A. W. Cuthbertson, Ph.C. Courses of instruction for the Minor examination begin in October, January, and April; fee, 8*l.* 8*s.* per term. A short revision course commences in the middle of April. Evening classes are also held; fee, 3*l.* 3*s.* per term. The Major examination can be arranged.

Royal Dispensary and School of Pharmacy of Edinburgh,
21 West Richmond Street, Edinburgh.

Principal: Mr. William Duncan, Ph.C., F.C.S., assisted by Messrs. W. G. Mackenzie, Ph.C. and Henry Stout, Ph.C. The next session opens on October 6. Complete courses for the Minor also begin in January and April; fee, 8*l.* 8*s.* per term. Evening classes are held on Mondays, Thursdays, and Fridays, commencing October 4; fee, 3*l.* 3*s.* for three months. Major course (three months) costs 10*l.* 10*s.*

Exeter University College.

Evening classes in pharmacy and *materia medica* are available. Fee, 17*l.* 1*s.* per term.

Glasgow School of Pharmacy,

180 West Regent Street, Glasgow.

Principal: Mr. M. M. Irvine, Ph.C., D.B.O.A., assisted by Mr. R. G. Howatt, Ph. C., and Mr. Jas. Tulloch, M.A. Day classes commence on the first Monday of each quarter. Course A (three months' lecture course) commences on October 4. Course B (three months' tutorial course) forms a natural sequence to course A. A short summer course commences on August 16. A complete evening course, extending over two years, commences on the first Monday of October. Further information is contained in the illustrated prospectus obtainable from the Principal.

Huddersfield Technical College.

A full Minor course is provided, the instruction in pharmacy and *materia medica* being given by Mr. J. B. Broadbent, Ph.C., on Tuesday afternoons; fee, 6*l.* 6*s.* per annum. Evening classes (chemistry, botany, and physics) cost 15*s.* 6*d.* with an extra 25*s.* for afternoon pharmacy.

Hull Municipal Technical College,

Park Street, Hull.

Head of Chemistry Department: Mr. Geo. E. Johnson, B.Sc. (Lond.), F.I.C. Evening classes in chemistry (organic and inorganic) and short day courses for girl dispensers are available. Fees, 5*s.* to 10*s.* per course; fees for the day courses by arrangement.

Leeds College of Pharmacy.

Principal: Mr. F. Pilkington Sargeant, Ph.C., F.C.S. Full-time courses for the Minor begin on October 13. There are separate classes for lady students. The part-time classes are suspended during the war.

Leeds Central Technical School.

Head Master: Mr. R. E. Barnett, B.Sc. The Minor course commences on September 20, and extends over two sessions on three evenings a week; fee, 3*l.* per session; preparatory course, 18*s.* per session. Preliminary examinations on classes are arranged at the Central School of Commerce, Woodhouse Lane, Leeds; fee, 30*s.* per session.

Leicester Municipal Technical School.

The Minor course in the specially fitted pharmacy department is covered in three years. Apprentices attend special day courses for the Preliminary examination at their employers' expense.

Liverpool School of Pharmacy,

18 Colquitt Street, Liverpool.

Principal: Mr. H. Humphreys Jones, Ph.C., F.C.S. Revision course for the October Minor starts on August 11; fee, 4*l.* 14*s.* 6*d.* The full course begins on September 13, others commence in January and April; fee, 9*l.* 9*s.* 15*d.* 15*s.* for the double course. Tuesday and Wednesday part-time classes (3 P.M. to 10 P.M.) begin on September 14 and 15, and cover the Minor syllabus by the end of June. No scholarships entitling the holders to a course of tuition in the Minor free of charge are offered annually for competition to part-time students. A complete course for the Assistants' examination of the Apothecaries' Hall will begin September 13.

LONDON.

West Ham Municipal Technical Institute.

Principal: Mr. J. R. Airey, M.A., B.Sc. The course in pharmaceutical subjects costs 25*s.*

City of London College,

White Street, Moorfields, London, E.C.

Classes in chemistry and botany suitable for the Minor examination are held on Monday, Tuesday, Wednesday, and Friday evenings. The sessional fee is from 15*s.* to 30*s.* for each class (members 10*s.* to 20*s.*). Full particulars from the Secretary, Mr. David Savage.

Misses M. E. Buchanan and S. J. Heywood,
Gordon Hall, Gordon Square, London, W.C.

At this school the principals are pharmaceutical chemists who, as women, are specially versed in the requirements of those of their sex who require training in the subjects of the pharmaceutical examinations or in dispensing. Individual coaching and short courses of dispensing, chemistry, and *materia medica* can be arranged. Interviews by appointment. Apply by letter for particulars. It is interesting to note that the Percira Medallist, the Hewlett Scholar, and the Fairchild Scholar this year were all students of this College.

Elt's College,

North Finchley, London, N.

Principal: Mr. E. E. Elt, B.Sc.

Tuition is provided for the Minor, Major, Apothecaries' Hall, and Preliminary examinations. Day and evening classes are provided in the College laboratories. Postal tuition is a feature of the College work, and this may be combined with practical work at the College. The accommodation of the College has been doubled recently, and special arrangements have been made for the training of women in pharmacy. The day classes reopened on August 11; evening classes reopen on September 30. Details of methods and particulars as to fees are given in the College's "Little Red Book."

London College of Chemistry and Pharmacy

[The South London School of Pharmacy (Muter's) is incorporated herein.]

361 Clapham Road, London, S.W.

Principal: Mr. Henry Wootton, B.Sc.

Revision course for the October Minor examination begins on August 11; fee, 5*l.* 5*s.* On September 8 a complete Minor course begins, and extends to Christmas; fee, 10*l.* 10*s.* The Spring and Summer terms, of three months' duration, commence early in January and April respectively; fee, 9*l.* 19*s.* 6*d.* A six-month course for the Major examination in April begins on October 13, fee 13*l.* 2*s.* 6*d.*; or three-month terms, January to April or April to July. 6*l.* 16*s.* 6*d.* Evening classes (fees, 1*l.* 1*s.* to 1*l.* 17*s.* 6*d.*) are also held. Courses for the Apothecaries' Assistants' examination commence on August 11 and in October, January, and April; fee for full course (six months), 10*l.* 10*s.* and for three-month term 5*l.* 15*s.* 6*d.*

Westminster College of Chemistry, Pharmacy, and Botany,

402 Clapham Road, London, S.W.

Principals: Mr. G. S. V. Wills, Ph.C., and Mr. P. H. Woodnoth.

Full courses commence in September, January, and April. There is also a short revision class from August to October. The fees are: Minor, single term 10*l.* 10*s.*; two terms 17*l.* 17*s.*, session 21*l.*, revision class 5*l.* 5*s.*; Major, one term 6*l.* 6*s.*, two terms 10*l.* 10*s.* Afternoon and evening classes are held every Wednesday and Thursday from 2 to 9 P.M.; fee, 1*l.* 1*s.* per term. Wills's Universal Postal System consists of a complete course of 100 lessons for home students; fee, 1*l.* 1*s.* Instruction for the Preliminary is also available.

The Principals are assisted in the training of lady students for the Apothecaries' Assistants' examination by Miss Mabel Young. Fees: Three months, 5*l.* 5*s.*; six months, 8*l.* 8*s.* until qualified, 10*l.* 10*s.*

Battersea Polytechnic,

Battersea Park Road, London, S.W.

Principal: Mr. F. H. Newman, M.A., Ph.D.

Courses for the Minor and Major examinations are arranged to suit day and evening students, the session opening on September 27. Lecturer: Mr. R. E. Griffiths, B.Sc., A.I.C., Ph.C. Minor students can arrange to complete the course in one session or may extend the work over a longer period. Separate subjects can be completed in one year. Fees, from 10*s.* to 1*l.* per subject for evening students; slightly higher rates for day students. A special course in Drug Assay and Microscopy is held on Tuesday evenings for Major students and students for the Institute of Chemistry examinations. The courses in Pharmacy and Dispensing are arranged to suit students preparing for the Assistants' examination of the Apothecaries' Hall. Further information regarding any of the classes may be obtained from the Secretary.

South of England College of Pharmacy,

186 Clapham Road, London, S.W.

Principal: Mr. H. Lucas, Ph.C., F.C.S., assisted by Messrs. H. E. Archer, Ph.C., and H. Steggles.

Minor courses, extending rather over three months, commence on September 27 and on January 1 and April 1; fee, 9*l.* 9*s.* or two terms for 17*l.* 6*s.* 6*d.* Tutorial class for

the October examination began on August 12; fee, 5*l.* 15*s.* 6*d.* Evening classes for Minor and Major students, held on Monday, Wednesday, and Thursday evenings, from 6.30 to 9 p.m., begin on October 1 and continue until July; fees: Minor, 8*l.* 18*s.* 6*d.* per session, or 3*l.* 3*s.* per session and 1*l.* 1*s.* per term for single evening each week; Major, 8*l.* 8*s.* per course, or 3*l.* 3*s.* for three months. Six-month and three-month courses for the Apothecaries' Assistants' examination cost 10*l.* 10*s.* and 5*l.* 15*s.* 6*d.* respectively. A system of correspondence tuition has also been inaugurated; fees, from 1*l.* 1*s.*

South-Western Polytechnic Institute.

Manresa Road, Chelsea, London, S.W.

Complete courses (day and evening) for the Minor, Major, and the Assistants' examination of the Apothecaries' Hall commence on September 27. Mr. H. B. Stevens, Ph.C., F.I.C., F.C.S., and Mr. J. Manson, Ph.C., are the lecturers in pharmacy and *materia medica*. Every facility is offered for thorough training in practical pharmacy. The courses cover two years, but students with a good fundamental training may complete their studies in one session. The sessional fees are: Minor or Major, day course 7*l.* 10*s.*; Minor or Major, evening course 1*l.* 5*s.*; Apothecaries' Hall, day course 9*l.*; Apothecaries' Hall, evening course 1*l.* 5*s.* A course on the analysis of foods and drugs is held on Tuesday evenings at 7 p.m., and is suitable for the Final examination of the Institute of Chemistry (Branch E) and as a post-graduate course for pharmacists. The lecturer in pharmacy will advise students as to suitable courses of study. Full particulars may be obtained from the Principal, Chemical Department, at the Institute.

The School of Pharmacy,

17 Bloomsbury Square, London, W.C.

Staff: Botany—Lecturer, Mr. C. H. Warner, B.Sc., F.I.C., D.I.C. Chemistry and Physics—Professor Henry L. Smith, B.Sc., F.I.C. Assistant Lecturer and Senior Demonstrator, Mr. W. R. Pratt, B.Sc., F.I.C. Demonstrators, Mr. C. E. Corfield and Mr. R. W. Bowles. Pharmacaceutics—Professor Henry G. Greenish, F.I.C., F.L.S. (Dean).

Courses for the Minor and Major examinations begin on October 6. The elementary (Minor) course continues until the end of June 1916; fee, 32*l.* 1*s.* or 30*l.* to student-associates. There is also an additional term (fee, 6*l.* 6*s.*) for students who have completed the elementary course. The advanced (Major) course ends in March 1916; fee, 18*l.* 18*s.*, or 18*l.* to student-associates or members of the Society. Summer term for students who have completed the advanced course, 4*l.* 4*s.* Students who can satisfy the Dean that they have received previous adequate training can make arrangements for special shorter courses or for separate classes; fees, 22*l.* for six months, or 11*l.* for three months.

Manchester College of Pharmacy,

292 Oxford Road.

Principals: Mr. Harry Brindle, Ph.C., F.C.S., and Mr. Charles Turner, Ph.C., F.C.S. Minor classes: Full time commence on August 16 and October 4; Tuesday, part-time class, August 31; Wednesday, part-time class, September 1. New terms commence in the first weeks of January and April. Major classes commence on the same dates as the Minor classes. The new premises embody many new features. Prospectus will be sent post free on application to the Principals.

University of Manchester.

The Minor and Major courses in the Pharmaceutical Department commence in October and extend over six or nine months, the composition-fees being 15*l.* 15*s.* and 19*l.* 19*s.* respectively. Students with previous adequate knowledge of science subjects can arrange to attend one whole day each week. Degree courses in pharmacy are available here; average cost per session, 20*l.* to 25*l.* Mr. James Grier, M.Sc., Ph.C., is the pharmacy instructor. A three-month course in bacteriology is also available for Major students; fee, 2*l.* 2*s.* For much other information see "Prospectus of Pharmaceutical Department."

Municipal School of Technology,

Whitworth Street, Manchester.

Principal: Mr. Maxwell Garnett. A two-years' course for the Minor examination has been arranged for the coming session. The course will be held on Wednesday afternoons and evenings, partly in the School of Technology and partly in Owens College, and will be completed by a short course involving whole-time attendance at Owens College, either during the six winter months or from the middle of April to the middle of July. The course will be open to registered students of the Pharmaceutical Society. For prospectus apply to the Registrar, the School of Technology, Whitworth Street, Manchester.

Northern College of Pharmacy,

100 and 102 Burlington Street, Manchester.

Principal: Mr. E. G. Bryant, F.C.S., Ph.C. Short revision course for the Minor starts on August 18. A four-month Minor course begins on September 1; fee, 10*l.* 10*s.* Three-month courses start early in October, January, and April; fee, 9*l.* 9*s.* Afternoon, once-a-week, and evening courses commence the first weeks in September and January; fees, 2*l.* 10*s.* to 4*l.* 4*s.* Students who have completed a year's course of part-time classes are eligible to compete for the Clayton Scholarship, providing four months' free tuition and books value 1*l.* Major courses are also provided. A separate department, under the guidance of a lady pharmacist, is at work for the Assistants' examination of the Apothecaries' Hall. The laboratories and dispensaries have recently been refurnished. Correspondence tuition is provided for all examinations.

North of England School of Chemistry and Pharmacy,

55 Northumberland Street, Newcastle-upon-Tyne.

Principal: Mr. J. Stableford Hill, Ph.C. Three-month terms begin on first Monday in October, January, and April; fee, 8*l.* 8*s.* A short revision class for the October Minor commences early in August; fee, 5*l.* 5*s.* Part-time classes are held on three evenings a week, and on Wednesdays from 2 p.m. to 9.30 p.m.; fee, 3*l.* 3*s.* per term. Major course, 7*l.* 7*s.* per term.

Nottingham School of Pharmacy,

49 St. James Street, Nottingham.

Principal: Mr. S. Royce, Ph.C. Day courses for the Minor begin early in September (fee 9*l.* 9*s.*) and in October, January, and April (fee 8*l.* 8*s.*) Afternoon and evening classes cost 1*l.* 1*s.* to 2*l.* 7*s.* 6*d.* per term of three months.

Nottingham University College.

Registrar: Mr. T. P. Black, M.A., Ph.D. Evening courses (must not be less than four hours per week) preparatory for the Minor examination cost 10*s.* per session, or 7*s.* 6*d.* per session each single class. Course for women dispensers, fee 3*l.* per term.

Plymouth Municipal Science Schools.

Principal: Mr. J. B. Brown, B.Sc. Day course in chemistry and dispensing; fees, 4*l.* 10*s.* per session; for dispensing only, 1*l.* per term, or 2*l.* per session. The evening pharmaceutical courses in chemistry and botany extend over four years; fee, 10*s.* per session.

Portsmouth Municipal College.

Principal: Mr. Oliver Freeman, A.R.C.S., B.Sc. Part time pharmaceutical courses (day and evening) have been arranged covering the subjects for the Minor in two years

Sheffield Central Secondary Schools.

Principal: Mr. J. W. Iliffe, M.A. Organising Master Mr. W. B. Marshman. The pharmaceutical course (evening) extends over three years. Mr. E. Preston, Ph.C., is the instructor in pharmacy and *materia medica*. Fees, 4*l.* 15*s.* 6*d.* To justify the continuation of these classes it is important that a sufficient number of students should come forward.

Hartley University College, Southampton.

Minor courses: Six-month day classes, composition-fee 10*l.*; evening classes extending over two sessions, composition fee 2*l.* 5*s.* per session.

North Stafford School of Chemistry and Pharmacy,

Stoke-on-Trent.

Principal: Mr. E. Griffiths, Ph.C., Kidsgrove, Stoke-on-Trent. Complete day and evening courses for the Minor.

Wolverhampton Municipal Science and Technical School.

A three-year course of instruction for the Minor examination commences on September 13; fee, 7*s.* per session.

Ireland.

The laws controlling the practice of pharmacy in Ireland differ somewhat from those of Great Britain, inasmuch as there are two distinct classes in Irish pharmacy—viz., (1) pharmaceutical chemists, and (2) chemists and druggists and registered druggists. The first class are entitled "to keep open shop" for retailing poisons and compounding and dispensing medical prescriptions. The second class may "keep open shop" for the selling and mixing of poisons, but they may not compound and dispense medical prescriptions. The first class are registered under the Pharmacy Act, 1878, and the second under an Amending Act, 1890. Persons with the title chemist and druggist are those who were in business

such before 1890, but since then all persons who desire to trade in poisons, but not to compound medical prescriptions, must be examined, and, on qualification, may use the title "Registered Druggist." A qualification for assistants to pharmaceutical chemists was also created by the 1890 Act, these being entitled to act as managers of pharmacies in the temporary absence of their employers. The examination and registration body under the Pharmacy Acts is the Pharmaceutical Society of Ireland, 67 Lower Mount Street, Dublin. Intending candidates should obtain the Regulations for these examinations, which are published in pamphlet form, and are obtainable free from the Registrar of the Society at the above address. It should be noted that

THE PRELIMINARY EXAMINATION

is conducted by the Pharmaceutical Society itself, although the certificates of certain examining bodies are accepted in lieu thereof. Of the number placed on the preliminary register during 1914 thirty-nine passed the Pharmaceutical Society's examination and twenty that of other bodies. The subjects of examination are: Latin, English, arithmetic, algebra, geometry, and either French or German or any modern language. The examination is held in Dublin on the first Thursdays and following days in January, April, July, and October, at 11 a.m. A fee of 2*l.* 2*s.* must be lodged with the Bank of Ireland to the credit of the Society, and the receipt forwarded to the Registrar (Mr. A. T. Ferrall), 67 Lower Mount Street, Dublin, at least fourteen clear days before the commencement of the examination. In case of failure, the fee for re-examination is 10*s.* 6*d.* This examination must be passed prior to entering upon apprenticeship.

Pharmaceutical Licence Examination.

The conditions to be fulfilled before entering upon the Pharmaceutical Licence examination are:

(a) After preliminary registration the person must serve four years as apprentice or assistant with, and in the sole employment of, a pharmaceutical chemist, or a chemist and druggist of Great Britain, or an apothecary, or a firm of legally qualified pharmaceutical chemists, chemists and druggists of Great Britain, or apothecaries, *in an open shop*, and the candidate must spend the business day with his employer. (Provision is made for service with more than one employer, and for those who have served four years with a chemist and druggist or registered druggist in Ireland, two years' further service with a pharmaceutical chemist or an apothecary suffices.)

(b) Attend three-months' courses of lectures in theoretical chemistry and in botany and *materia medica*, and a three-months' course of practical chemistry (after the lectures in theory) at one or other of the following approved institutions:

Pharmaceutical Society of Ireland, School of Chemistry. School of the Pharmaceutical Society of Great Britain. Cecilia Street School of Medicine, Dublin. City of Dublin Technical Schools. Government School of Science, South Kensington. Queen's University, Belfast. Queen's University, Cork. Queen's University, Galway. Royal College of Science for Ireland, Dublin. Royal College of Surgeons in Ireland, Dublin. School of Physic, Trinity College, Dublin. The Anderson College of Medicine, Glasgow. Royal Academic Institution, Belfast. The Municipal Technical Institute, Belfast. Mr. Templeton's School of Scientific Method and Chemistry, Belfast. Crawford Municipal Technical Institute, Cork. Some of these are approved for all the subjects.

(c) The person must be twenty-one years of age.

(d) Declarations and certificates of the foregoing must be lodged with the Registrar when the candidate applies for entry to the Licence examination.

The examination commences on the second Wednesdays in January, April, July and October, at 11 a.m., and is held in the Pharmaceutical Society's House, Dublin. Candidates must give notice of intention to attend to the Registrar fourteen clear days before the date of the examination, and this must be accompanied by a receipt having paid the fee (5*l.* 5*s.*) into the Bank of Ireland to the credit of the Society. The necessary forms should be procured well in advance. The examina-

tion, which is written, practical and oral, is in the following subjects:

BOTANY: Recognition of the principal indigenous plants used in medicine, their natural orders, and the characters of their several parts.

MATERIA MEDICA: Recognition of B.P. drugs; their characters, active principles, sources, official preparations, and adulterations.

CHEMISTRY: Elementary laws of chemistry and physics, including equations. Recognition of B.P. chemicals, the processes by which they are obtained, qualitative analysis (including B.P. tests) and volumetric analysis, and a practical examination in these subjects. (The Council recommends Corbyn and Stewart's "Physics and Chemistry.")

PRACTICAL PHARMACY: Translation of Latin prescriptions, detection of dangerous doses, and compounding and dispensing. Processes of making and recognition of B.P. non-chemical preparations, and an intimate knowledge of the Sale of Poisons (Ireland) Act.

The minimum pass percentage in pharmacy is 50, and in botany, *materia medica*, and chemistry 40 each, with 55 per cent. in the aggregate. Honours are given to candidates who take 70 per cent. of the total marks, with not less than 50 per cent. in any subject.

Assistants to Pharmaceutical Chemists' Examination.

This examination is also held quarterly, being on the Saturdays following the examination for the Pharmaceutical Licence. This permits candidates "referred" at the latter examination to enter for the assistants' examination on payment of a fee of 1*l.* 1*s.* New candidates pay a registration-fee of 1*l.* 1*s.* The conditions are similar to those of the Licence examination, but the candidate need not be twenty-one years of age, nor have taken a special course of instruction. The subjects are prescription-reading and translation, including the detection of unusual doses, practical dispensing, *materia medica*, pharmacy, including recognition of non-chemical pharmacopeial preparations and a knowledge of the proportions of active ingredients in these, and the laws relating to the sale of poisons in Ireland.

Registered Druggists' Examination.

The subjects of this examination are as prescribed by the 1890 Act—viz.:

English orthography and composition.

Arithmetic and the weights and measures of the British Pharmacopœia.

The appearance and properties of the various drugs and chemicals in general use.

The Sale of Poisons (Ireland) Act.

The examination is open to anyone who has served as an assistant or apprentice for not less than four years to a pharmaceutical chemist, chemist and druggist, registered druggist, or licentiate apothecary keeping open shop, and is held in Dublin and Belfast (if twelve candidates apply) on the second Tuesdays of January, April, July, and October. Applications for admission, accompanied by the necessary declarations of service and a receipt for 4*l.* 4*s.* (examination-fee 2*l.* 2*s.*, and registration-fee 2*l.* 2*s.*) placed to the credit of the Society in the Bank of Ireland, must be made to the Registrar at least fourteen days before the dates of the examinations.

In case of non-success at any of the examinations of the Pharmaceutical Society of Ireland, six months must elapse before the candidate can again present himself. The fees for re-examination are: Pharmaceutical Licence examination, 2*l.* 2*s.*; Assistants' examination, 10*s.* 6*d.*; Registered Druggist examination, 10*s.* 6*d.*

The Calendar of the Society contains the questions set at all the written examinations of the Society, and may be obtained from the Registrar (2*s.* 3*d.* post free).

Following are particulars of the principal institutions in Ireland whose courses of instruction in botany, chemistry, and *materia medica* for the Licence examination are recognised by the Pharmaceutical Society of Ireland.

Belfast Municipal Technical Institute.

The Pharmaceutical Section of the Pure and Applied Chemistry Department provides full courses in evening classes, also in pharmacy. Fees, 5*s.* to 10*s.* per subject per session.

School of Scientific Method and Chemistry,
The Gables, Botanic Avenue, Belfast.

Principal: Mr. S. Templeton, A.R.C.S., F.I.C. The fees are: Theoretical chemistry, 1*l.* 1*s.*; practical chemistry, 4*l.* 4*s.*; botany, 1*l.* 1*s.*; and *materia medica*, 1*l.* 1*s.* Instruction in pharmacy is also given. The new terms begin on September 6 and January 3. Revision courses and classes for the Pharmaceutical Assistants' and Registered Drugists' examinations are also held.

Pharmaceutical Society's Schools,
67 Lower Mount Street, Dublin.

Directors: Chemistry School, Professors G. Brownlee, B.Sc., and W. McLean, B.A., B.Sc. Botany and *Materia Medica* School, Dr. T. Mather Thompson and Dr. J. A. Clarke, B.A. There are three sessions, commencing on the first day in October, January, and April. The fees for courses to meet the Society's regulations are: Theoretical chemistry (three months), 1*l.* 1*s.*; practical chemistry (six months), 6*l.* 6*s.*; practice course (three months), past students 2*l.* 2*s.*; students of other schools, 3*l.* 3*s.*; botany and *materia medica* (three months), 2*l.* 2*s.* The theoretical chemistry class is held on Tuesday and Thursday evenings, and the practical chemistry class on Monday, Wednesday, and Friday evenings. A day class for practical chemistry (three months) begins in April, fee 6*l.* 6*s.*; also a day practice course. The botany and *materia medica* classes are held on Tuesday and Thursday evenings with occasional Saturday demonstrations. The chemistry and *materia medica* courses are recognised by the Royal Colleges of Physicians and Surgeons in Ireland. Book prizes are awarded for superior work at the sessional examinations.

Apothecaries' Assistants' Certificates.

The Society of Apothecaries, Water Lane, Blackfriars, London, E.C., grants certificates which entitle the holders to act as assistants to apothecaries who are licentiates of the Society. These certificates do not enable the holders to keep open shop for the sale or dispensing of poisons, but are accepted by some institutions as evidence of skill and competency in compounding. Apothecaries' assistants can also act as dispensers under the National Insurance Act, provided their work is supervised by a qualified chemist. The conditions for obtaining the certificate are briefly as follows:

(a) The candidate (male or female) must be at least nineteen years of age.

(b) A certificate of sound general education must be produced.

(c) A certificate signed by an apothecary's assistant holding a public appointment, a registered chemist and druggist, or a registered medical practitioner, showing that special instruction in practical pharmacy has been taken for six months.

(d) The candidate must pass an examination in (1) compounding and dispensing medicines, (2) chemistry, (3) *materia medica* and pharmacy, and (4) prescription-reading.

The examination is held at the Society's Hall, Blackfriars, on the fourth Mondays of January, April, July, and October, and is an oral and practical one. The entry-form (obtainable from Mr. Frank Haydon, M.R.C.S., Secretary to the Court of Examiners, at the above address) must be filled in and returned, along with the examination-fee (5*l.* 5*s.*) at least fourteen days before the date of the examination. The fee for re-examination is 3*l.* 3*s.* A copy of the detailed regulations may be obtained from Mr. Haydon. A suitable text-book for those preparing for this examination is Miss Mabel Thomson's "Apothecaries' Hall Manual" (Whitaker, 2*s.*). "The Art of Dispensing" (C. & D. Office, 6*s.*) is the book *par excellence* in dispensing.

The Apothecaries' Hall of Ireland, 40 St. Mary Street, Dublin, holds an examination for a similar certificate on the first Friday of each month except August. Candidates must be eighteen years of age, and must submit certificates of (a) age, and (b) service of at least one year at pharmacy under the superintendence of a medical practitioner or a pharmaceutical chemist. Notice of intention to attend must be given on the recognised form (obtainable from the Registrar) at least seven days prior to the examination, and must be accompanied by the fee of 4*l.* 4*s.* (fee for re-examination, 2*l.* 2*s.*). The subjects of the examination are pharmaceutical and general chemistry, *materia medica*, pharmacy (practical and theoretical), antidotes to poisons, and the imperial and metric systems of weights and measures.

Degrees in Pharmacy.

Two educational bodies—viz., the Universities of Glasgow and Manchester—have instituted degrees in pharmacy, but they have not proved attractive to pharmacists. The Glasgow degree is granted to duly registered chemists and druggists who take a specified curriculum and pass the required examinations. The regulations for the degree are published by J. MacLehose & Sons, 61 St. Vincent Street, Glasgow. The Manchester degree requires a three-years'

course, the candidate being prepared for the "Minor" (first year), "Major" (second year), and graduating at the end of the third year. Particulars are given in the prospectus of the Pharmaceutical Department of the University of Manchester.

BOOKS FOR PHARMACY STUDENTS.

A number of excellent text-books suitable for pharmaceutical students are published. In making a selection from the subjoined list, due regard should be had to the individual requirements of the student, and, if possible, the advice of employers or teachers should be sought. It is a mistake to purchase books—and especially scientific books—in a haphazard manner. The following are suitable for Minor students:

BOTANY.

"Elementary Botany," Edmonds (Longmans, Green & Co.), 2*s.* 6*d.* (suitable for beginners).

"Text-book of Botany," Amy Johnson (Allman), 7*s.* 6*d.*

"Introduction to Structural Botany": Part 1, "Flowering Plants"; Part 2, "Flowerless Plants," D. H. Scott (Black), each 3*s.* 6*d.*

"Botanist's Pocket Book," Hayward, revised by G. C. Druce (Bell), 4*s.* 6*d.*

"Flowers of the Field," John, revised by Clarence Elliott (G. Routledge & Sons), 10*s.*

"Practical Botany for Beginners," Bower and Gwynne-Vaughan (Macmillan), 3*s.* 6*d.*

THEORETICAL CHEMISTRY.

"Elementary Inorganic Chemistry," James Walker (Macmillan), 3*s.* 6*d.* (suitable for beginners).

"Text-book of Inorganic Chemistry," Senter (Methuen), 6*s.* 6*d.*

"Modern Inorganic Chemistry," Mellor (Longmans, Green & Co.), 7*s.* 6*d.*

"Theoretical Organic Chemistry," Cohen (Macmillan), 6*s.*

PRACTICAL CHEMISTRY.

"Short Manual of Analytical Chemistry," Muter (Baillière, Tindall & Cox), 6*s.*

"Qualitative Chemical Analysis, Organic and Inorganic," F. Mollwo Perkin (Longmans, Green & Co.), 4*s.*

PHARMACEUTICAL LATIN AND PRESCRIPTION-READING.

"Latin Grammar of Pharmacy," Joseph Ince (Baillière, Tindall & Cox), 5*s.*

"Medical and Pharmaceutical Latin for Students of Pharmacy and Medicine," R. R. Bennett (Churchill), 6*s.*

MATERIA MEDICA.

"A Text-book of Materia Medica," Greenish (Churchill), 15*s.*

"Materia Medica," Southall, revised by E. W. Mann (Churchill)

PHARMACY.

"British Pharmacopoeia" (Constable & Co., Ltd.), 10*s.* 6*d.*

"Practical Pharmacy," Lueas (Churchill), 12*s.* 6*d.*

PRACTICAL PHARMACY.

"Elementary Dispensing Practice," Ince (C. & D. Office), 3*s.* 6*d.* (suitable for beginners).

"The Art of Dispensing" (C. & D. Office), 6*s.*

MAJOR STUDENTS

will find the following suited to their requirements:

BOTANY.

"Text-book of Botany," Strasburger (Macmillan), 18*s.*

"Flowering Plants and Ferns," Willis (Cambridge Press) 2 vols., 10*s.* 6*d.*

"Ecology of Plants," Warming (Clarendon Press), 7*s.* 6*d.*

"Systematic Botany for Advanced Students," Oliver (Blackie) 6*s.* 6*d.*

"Handbook of the British Flora," Bentham and Hooker, with companion volume (illustrations) (Reeve), 9*s.* each.

"Physiological Plant Anatomy," Haberlandt (Macmillan), 2*s.*

THEORETICAL CHEMISTRY.

"Introduction to General Inorganic Chemistry," Smith (Bell & Sons), 7*s.* 6*d.*

"Recent Advances in Organic Chemistry," Stewart (Longmans, Green & Co.), 7*s.* 6*d.*

"Organic Chemistry," Perkin and Kipping (Chambers), 7*s.* 6*d.*

"Modern Organic Chemistry," Keane (Scott), 6*s.* 6*d.*

"Introduction to Physical Chemistry," James Walker (Macmillan), 10*s.*

"Outlines of Physical Chemistry," Senter (Methuen), 3*s.* 6*d.*

"A Text-book of Inorganic Chemistry," edited by J. Newell Friend (Chas. Griffin & Co., Ltd.), vol. 1, 10*s.* 6*d.* net.

"Organic Chemistry," Bernthsen (Blackie & Son, Ltd.), 7*s.* 6*d.*

PRACTICAL CHEMISTRY.

"Scheme for the Detection of the more Common Classes of Carbon Compounds," Weston (Longmans, Green & Co.), 2*s.* 6*d.*

"Elementary Practical Chemistry," Part II: "Analytic Chemistry," Clowes and Coleman (Churchill), 3*s.* 6*d.*

"Quantitative Chemical Analysis," Clowes and Coleman (Churchill), 10*s.* 6*d.*

"Systematic Handbook of Volumetric Analysis," Sutton (Churchill), 2*s.* net.

MATERIA MEDICA AND PHARMACEUTICS.

"Pharmacographia," Flückiger and Hanbury (Macmillan), 2*s.*

"Botany and Pharmacognosy," Kraemer (Lippincott), 2*s.*

"Microscopic Examination of Food and Drugs," Greenish (Churchill), 12s. 6d.
"Anatomical Atlas of Vegetable Powders," Greenish and Collin (Churchill), 12s. 6d. net.

PHYSICS.

"Heat and Light," Glazebrook (Cambridge Press), 5s.
"Heat for Advanced Students," Edser (Macmillan), 4s. 6d.
"Light for Advanced Students," Edser (Macmillan), 4s. 6d.
"Light" and "Heat," Stewart (Clive), 4s. 6d. and 6s. 6d. respectively.
"Physics," Ganot (Longmans, Green & Co.), 15s.
"Electricity and Magnetism," Professor S. P. Thompson (Macmillan), 4s. 6d.

BOOKS FOR REFERENCE.

The following will be found useful for reference, particularly by Major students: Richter's "Chemistry of the Carbon Compounds" (Kegan Paul), Vol. I., Aliphatic Series, 4s.; Vol. II., Hetero- and Carbo-cyclic Series, 15s.; Thorpe's "Dictionary of Applied Chemistry," five vols. (Longmans, Green & Co.), each 45s.; and Allen's "Commercial Organic Analysis," eight vols. (Churchill), 21s. each.

Minor Examination Experiences.

LONDON.

F. H. D. (162/15) contributes the following account of the Minor examination held in London last month:

I duly presented myself at Galen Place on the appointed day, feeling somewhat anxious, as I was very desirous of getting through the examination before candidates are examined in the new B.P. After the usual preliminaries was called up for

DISPENSING, when the following paper was handed to me:

Send 24 pil. Bland. gr. v.; put arsenic, gr. $\frac{1}{2}$ in each and garnish. Label them "The Tonic Pills."

r. opii	... ...	mx.	Ung zinci ox.
ll. theobrom.	... q.s.		Liq. hamamel.
Fiat suppos. j.	Mitte vj.		Adip. lanu. hyd. aa. siv.
The cream.			
r. quin.	... ...	5j.	Zinci chlor. gr. $\frac{1}{2}$
pt. ammon. co.	... ...	5ss.	Cocain. hyd. gr. j.
af. gent. co. ad	... ...	5j.	Aq. ad siv.
Mitte 5vij.			
sch. mag. ij.	t.d.s.		The eye-drops.

at once wrote all labels, then from the B.P. provided worked out the quantities for the pills. (The examiner had previously requested that all calculations should be kept.) Having set the pills going, I put on the infusion of gentian, the examiner noting the *modus operandi*. I then went on with the other preparations, returning to the mixture and is later. I had to make the zinc ointment, but got everything finished on the stroke of time.

In PRACTICAL CHEMISTRY, in the afternoon, I was an even number, so had to do the volumetric work first. The paper said: "The AgNO_3 solution is said to be 3 per cent.; prove or disprove this statement; pure sodium chloride provided." I had no trouble here, and got my answer 3.4 per cent. The "salt" I found, after a good deal of work, to contain Bi, Mg, arsenate, and sulphite. I wrote a good report on my work, but felt rather doubtful about it. Next day I was requested to attend again on July 8, which I thought gave me nice time in which to work things up. I am afraid I was unable to read much in the time. The second day I waited twenty minutes before being called for.

CHEMISTRY.—I was asked to state the laws of Boyle and Charles and to give as many methods of making oxygen as I could. What is "nascent" hydrogen? Its action on C_5NO_2 and $\text{C}_2\text{H}_5\text{ONO}$? How is HgO made? Action of heat on it? How make $\text{C}_6\text{H}_5\text{NH}_2$? Law of diffusion of gases? Mention two alcohols. What sort of alcohol is ether? How made? Its uses otherwise than in pharmacy? Action of HNO_3 on it? How make phenol from benzene? The examiner then dismissed me, telling me he was going to give me a good start. Next came

PHARMACY.—I had first to write down all the preparations of opium or morphine I knew and their strengths. After that I was asked the constituents of pulv. ipecac. co. Anything peculiar about it? I said the dose is 15 grains, whereas in other opium preparations containing 10 per cent. the dose is 10 grains. How make spt. ammon. co.? Why not put all the ingredients in the still at once? How make spt. aeth. nit.? The reactions which take place? How is it estimated? (I was given a nitrometer to explain this exactly.) What is meant by saying that solution of hydrogen peroxide is 10 vols.? How is it estimated? Does all the oxygen come from the H_2O_2 ? How is ext. bellad. prepared? How assayed? How is the alcoholic extract made? What tinctures are made by percolation? By maceration? By other methods? What is contained in the finished product in the case of tr. quinin. ammon.? I

replied ammonium sulphate and quinine alkaloid dissolved in 69-per-cent. alcohol. In what divisions of the Poison Schedule would you place liq. arsen., aq. laurocerasi, and liq. hyd. perchlor.? What is the difference between 1 grain and 1 grain and 1 kilogram and 1 lb.? Pharmacy I considered my best subject, so I came through this ordeal quite well.

MATERIA MEDICA followed. The following were given to recognise, and the English names were required: Myrrh, althaea, opium (three kinds), cubeb, false cubeb, cassia-buds, colocynth, ginger (official and non-official), sarsaparilla (habitat?), quassia (habitat?), ammoniacum (what is it?), elatium, asafoetida, hops, and, lastly, either *Veratrum viride* or *album*. Regarding the last, I told the examiner he had me as I did not know which variety it was. The next subject was

PRESCRIPTION-READING.—Here I had to read about four prescriptions written in pharmaceutical Latin, translate an easy prescription into full Latin, and give a number of doses, including the following: Inj. morph., tr. opii, phosphorus, ext. nuc. vom. liq., pilocarpin. nit., and potassium permangan. I was also asked in what part of the Poison Schedule I would place a 5-gr. Easton's syrup tablet containing $\frac{1}{2}$ gr. of strichnine, and to work out the percentage of strichnine it contained. The examiner informed me I had done very well with him, and hoped I should get through all right. My last subject was

BOTANY.—I was handed a copy of the syllabus and told to read out the English names of the plants mentioned there for recognition and give their natural orders. How many stamens in *Rosaceæ*, *Compositæ*, *Solanaceæ*? How does a plant obtain nitrogen otherwise than through the root-hairs? Give the life-history of the fern. The last question was one of the few things I did know really well in botany.

In a few minutes I was called up and informed that I had passed a very creditable examination, and later in the afternoon I received my certificate. In conclusion, I should like to say that all the examiners treated me with the utmost fairness and courtesy.

EDINBURGH.

Aspirin (165/12) contributes an account of the Edinburgh examination, of which the following is an abstract:

PRACTICAL CHEMISTRY.—The volumetric work consisted in the estimation of the amount of sodium carbonate in the solution given, pure crystallised oxalic acid being provided. In qualitative work the solution given for analysis was found to contain strontium bromide and magnesium chloride. These presented no difficulty.

In DISPENSING in the afternoon the following paper was given:

Prepare one-sixth of the B.P. quantity of syrup of hemidesmus, infusing for one-quarter of the time required.

Prepare about 5j. rose-water ointment, B.P.

Bismuth. subnit. gr. iij.

P. cret. arom. c. opio gr. v.

Mitte pulv. vj.

Sig.: One every four hours.

(The candidate had to make the pulv. cret. arom. c. opio.)

Ext. cascarae. sag. gr. iij.

Ext. nuc. vom. gr. $\frac{1}{4}$

Aloin. gr. $\frac{1}{2}$

Ext. hyoscyami q.s.

Ft. pil.

Sig.: One at night when required.

Argenti nit. 0.5 gram.

Sodii nit. 0.766 gram.

Aq. dest. ad 50 c.c.

Send 25 c.c.

On the following afternoon the candidate received notice to attend for the oral a week later. In the second day's examination

BOTANY was the first subject. The candidate was given several of the plants for recognition to "spot," including foxglove, yew, rosemary, lavender, and cherry-laurel. Then followed questions on the difference between a vessel and a tracheid and the functions of the xylem. A slide was shown under the microscope which was recognised as a longitudinal section of pine wood. Was it a radial or a tangential section? Draw a sketch of a mushroom and name the parts!

PHARMACY followed. Here the candidate was shown a liquid which he recognised as terebene. How is it prepared? Liebig's condenser shown. Explain its working? Then followed a number of questions on the preparation of vinegars, liniments, and extracts, with their strengths, and, lastly, a few questions on the Poison Schedule.

PRESCRIPTION-READING came next. Here two prescriptions were given to translate into full Latin, and two easy

calculations were given to work out while the preceding candidate was being questioned. After this half-a-dozen badly written prescriptions had to be read, and about thirty doses were asked.

In *MATERIA MEDICA* the candidate was shown specimens of the following drugs for recognition: Digitalis-leaves and adulterants (comfrey-leaves and primrose-leaves), belladonna leaves and root, stramonium-leaves, strophantus-seeds (give test), conium-fruit, cascara-bark, etc. The botanical name and constituents of each of these drugs, the names of a few liquid volatile alkaloids, and the official assay process for liquid extract of belladonna were also required.

CHEMISTRY was the last subject. The following questions show the nature and scope of the examination in this subject: Give two processes for preparing iodine and write out the necessary equations. The action of phosphorus on iodine? The action of sodium thiosulphate on iodine? Give the equation representing the latter reaction. Give two methods of preparing oxalic acid, with equations.

The candidate retired feeling very well pleased with his prospects of success, and in a few minutes he was congratulated by the Chairman on passing a very fine examination. He says he found the examiners very courteous, and they did their best to help him out of any difficulty.

Pharmaceutical Scholarships and Prizes.

Subjoined are concise particulars of the prizes and other aids to study available for students of pharmacy. Some of them are open to all students, but others are more or less limited in their scope. Those desiring to enter for any of the awards should first obtain particulars from the address given in connection with the particular competition.

ABERDEEN PHARMACEUTICAL ASSOCIATION offers for competition, open to students attending the evening classes of the School of Pharmacy, Robert Gordon's Technical College, Aberdeen, two prizes in each of the subjects taught during the session. Address the Secretary, Mr. W. F. Hay, 476 Union Street, Aberdeen.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION offers four prizes, value 1*l.* 1*s.*, and a prize of books for solutions of dispensing problems, for competition among its members only. For particulars of the examinations apply to the Hon. Secretary, Mr. Arthur Cairns, 16 Comely Bank Place, Edinburgh.

KINNINMONT PRIZE, awarded annually, is open to pharmacists residing in Glasgow and the West of Scotland who have passed the Minor at any time from April two years preceding the date of examination. The examination, which is in botany and elementary physics, is held in Glasgow in June. Hon. Secretary, Mr. W. L. Currie, 223 Byres Road, Dowanhill, Glasgow.

CHARLES JAMES HEWLETT MEMORIAL EXHIBITION is awarded on the recommendation of the Professors of the Pharmaceutical Society's School to the student (other than a Bell scholar) who most distinguishes himself during attendance at the elementary course. The exhibition is about 15*l.* in value, and it pays the fees of the successful candidate for the ensuing advanced or Major course.

THE PHARMACEUTICAL SOCIETY OF IRELAND.—The Council awards annually a gold and a silver medal to pharmaceutical chemists who have during the year passed the Licence examination and obtained the following standard of marks: For the gold medal, not less than 240 marks out of 300, and sixt-five in each of the three subjects; for the silver medal, 230 marks out of 300, and sixty in each of the three subjects.

CLAYTON SCHOLARSHIP.—Students who have completed a year part-time classes at the Northern College of Chemistry and Pharmacy, Manchester, are eligible to compete for this scholarship, which entitles the holder to free tuition at the College for four months (from September to Christmas) and to a grant of books to the value of 1*l.* Address inquiries to the Principal, Mr. E. G. Bryant, F.C.S., Ph.C., 100 and 102 Burlington Street, Manchester.

"CORNER FOR STUDENTS" PRIZES.—THE CHEMIST AND DRUGGIST provides exercises in qualitative chemical analyses, for which the proprietors award two book prizes monthly. A tournament is conducted throughout the winter session, the marks each month being registered, and the three competitors who receive the highest number are awarded parchment certificates and book prizes to the value of 2*l.* 2*s.*, 1*l.* 1*s.*, and 10*s.* 6*d.* Prizes are also awarded to any student whom the conductor of the "Corner" (Dr. Leonard Dobbin) judges to have made meritorious progress.

MANCHESTER PHARMACEUTICAL ASSOCIATION SCHOLARSHIP is open to student-associates of the Pharmaceutical Society who have been engaged for not less than three years in

the pharmacy of a pharmaceutical chemist or a chemist and druggist in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire. It has an annual value of about 3*l.*, which is spent in paying for school tuition in any provincial school of pharmacy or in the Society's school. The other conditions of entry and competition are similar to those of the Bell Scholarship.

HERBARIUM PRIZES.—The Pharmaceutical Society of Great Britain offers annually to its student-associates a silver medal, a bronze medal, and certificates of honour for a herbarium of British plants collected in any part of the United Kingdom, the Channel Islands, or the Isle of Man between January 1 in one year and July 1 in the year following. No collection may contain more than 150 specimens selected and mounted to display the characteristic features of the more prominent and typical genera of the chief British natural orders. Particulars can be obtained from Mr. W. J. U. Woolcock, 17 Bloomsbury Square, London, W.C.

JACOB BELL SCHOLARSHIPS.—Two scholarships are offered annually by the Pharmaceutical Society of Great Britain a memorial of Jacob Bell, its originator. The award comprises free education at the Society's School and 2*l.* in cash, with books to the value of 2*l.* 10*s.* The scholarship are open only to student-associates of the Society not less than twenty or more than twenty-two years of age who have been engaged for not less than three years in the pharmacy (*i.e.*, open shop) of a pharmaceutical chemist or a chemist and druggist. The examination is held on the third Tuesday in June at London, Edinburgh, and Manchester. Application for admission must be made on or before June 1 to Mr. W. J. U. Woolcock, 17 Bloomsbury Square, London, W.C. The subjects of the examination, which is in writing are: Latin, French or German, chemistry, pharmacy, and botany.

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN offer annually three medals for competition by pharmaceutical chemists who have passed the Major examination during the year. The competitive examination is in *materia medica*, botany, and chemistry, and is held shortly after the Major examination in April. The Registrar informs each person entitled to compete. The first prize is the Pereira Silver Medal and 5*l.* worth of books; second, the Society's Silver Medal; and third, the Society's Bronze Medal. The Society also has in its gift the following scholarships:

The Redwood Scholarship, of the value of about 60*l.* is cash awarded every second year to a pharmaceutical chemist to pursue work in the Society's research laboratory.

The Burroughs Scholarship of about 50*l.* every second year for a similar purpose.

The Salters' Research Fellowship in chemistry, of the annual value of 100*l.*, is awarded by the Salters' Company on the Society's nomination.

FAIRCHILD SCHOLARSHIP AND PRIZES.—One scholarship of 50*l.* and four prizes of 5*l.* each are awarded annually by Committee of Trustees on behalf of the donors, Fairchild Bros. & Foster, New York and London. The awards are open to any registered student of pharmacy in the United Kingdom between the ages of twenty and twenty-two, who has fulfilled the conditions of entry for the Minor examination of the Pharmaceutical Society of Great Britain or the Licence examination of the Pharmaceutical Society Ireland. The examination comprises written papers in elementary chemistry, elementary *materia medica*, practical pharmacy and prescription-reading, and elementary business knowledge. The candidate obtaining the highest aggregate number of marks is awarded the scholarship and out of it he must pay school-fees for not less than three months at any scholastic institution he may select to enable him to prepare for the Minor examination of Great Britain or the Licence examination of Ireland. Any of the money not used in this manner is paid to the student for maintenance. The prizes of 5*l.* are awarded to the best students in England, Wales, Scotland, and Ireland. The examination syllabus can be obtained from Mr. A. Holden, Secretary, Albert Chambers, 64 and 65 Holbo Viaduct, London, E.C., with whom entries must be made for the next examination by June 1, 1916. The candidates may be examined at any of the following centres, return fare being paid for the centres nearest to which candidates reside: Cardiff, Dublin, Edinburgh, London, and Manchester.

Appointments as Dispensers.

METROPOLITAN ASYLUMS BOARD.—The salary paid by the Board for the post of dispenser is 120*l.* per annum, rising after four years' service, by annual increments of 7*l.* 1*s.* to 180*l.* per annum. The Clerk to the Board informs that the Order of the Local Government Board in reference to these appointments states: "No person shall be qualified

to be appointed a dispenser unless he shall be a Licentiate of the Apothecaries' Company of London, or shall have been duly registered under the Pharmaey Act, 1868, or any other authority of law in that behalf." Accordingly, Minor and Major qualifications of the Pharmaceutical Society and the L.S.A. diploma (full medical qualification) are accepted; the holders of the Apothecaries' Assistants' certificate only not being eligible.

BOARDS OF GUARDIANS.—Poor-law dispenserships under the Local Government Board of England are open to those who hold certificates as Licentiates of the Society of Apothecaries, London; apothecaries' assistants (under the English Act); Army compounders; chemists and druggists (G.B.); or pharmaceutical chemists (Ireland). Salaries begin at 20*l.*, and can be increased by 20*l.* after four years, and then by biennial increments of 10*l.* until a maximum of 80*l.* a year (or under exceptional circumstances 200*l.*) is reached in the metropolitan area. Dispensers receive pensions on retirement through age or ill-health, a deduction from the salaries being made in respect to this arrangement.

NAVAL HOSPITALS.—There are nineteen berths for dispensers at home and abroad, as follows: Haslar, six (including supernumerary appointment); Plymouth, four; Chatham, four; Haulbowline, Malta, Gibraltar, Hong Kong, and Portland, one each. Candidates for vacancies must be chemists and druggists or pharmaceutical chemists, not more than twenty-eight years old. The pay commences at 110*l.* per annum, with biennial increments of 5*l.* until 130*l.*, then by 10*l.* every two years to 230*l.* Additional allowances of from 20*l.* to 40*l.* a year are made to dispensers in charge of stores: 20*l.* is also allowed to the dispensers constituting the Sick-berth Staff at Haslar, Plymouth, and Chatham. Free quarters are provided, and allowances made to those serving on foreign stations to meet the increased cost of living. Pensions are granted on retiring. Entry into the Service is by examination, conducted by the Civil Service Commissioners, but the candidates are first tested by the Medical Department of the Navy, Admiralty, London, S.W., to the Director-General of which

Department applications respecting vacancies and nominations should be addressed.

ARMY COMPOUNDERS are non-commissioned officers in the Royal Army Medical Corps (see p. 64). They enlist in the Corps as private soldiers, with the requirements (additional to that of private soldiers) of passing a test in reading and of general intelligence, and certification as being suitable for the Corps. Before being permitted to undergo training as a dispenser, the private must possess at least a second-class certificate and have passed the examination for promotion to corporal in the Royal Army Medical Corps. The training in the dispensary of the military hospital extends over nine months, and includes hospital and nursing duties. Most compounders are of sergeant's rank. During the present war a limited number of civilian dispensers were enlisted in the R.A.M.C. for the duration of the war at special rates of pay—viz., 6*s.* per day, with a bonus of 5*l.* on enlistment and a similar bonus on discharge.

PRISON SERVICE.—The regulations for pharmacists in English and Welsh prisons admit applicants between the ages of twenty-four and forty, inclusive. Candidates must hold a qualification of the Pharmaceutical Society of Great Britain, and must satisfy the Civil Service Commissioners as to their abilities in reading, writing, orthography, and arithmetic. The duties consist of dispensing medicines, assisting in keeping medical records, keeping medical and surgical instruments in order, assisting in the performance of surgical operations, doing the duties of hospital warden when necessary, and keeping the dispensary and its stores. The scale of remuneration is from 109*l.* 4*s.* per annum, rising by 2*l.* per annum to 125*l.*, then by 5*l.* per annum to 156*l.*, with quarters, or 19*l.* 10*s.* per annum in lieu thereof. An allowance of 5*l.* 4*s.* per annum is also granted in lieu of uniform. Pensions are granted on retiring. The photographic work in connection with the prison also frequently falls to the lot of the pharmacist, for which extra remuneration is allowed. An application-form for appointment to the subordinate staff in the prison service has first to be obtained from the Secretary of the Civil Service Commission, Burlington Gardens, London, W.

Medicine.

The practice of Medicine and Surgery in Great Britain and Ireland is governed by the Medical Acts under which the General Council of Medical Education and Registration of the United Kingdom (commonly called the General Medical Council) is charged with the registration of persons who have qualified in medicine, surgery, and midwifery by passing the examination of approved licensing or degree-granting bodies in the United Kingdom or elsewhere in the British Empire. The nature of the medical curriculum, its duration, and the number of examinations are determined by the Council, which also certain powers as to the inspection of the examinations, but the Council does not itself conduct examinations, either directly or by deputy. Broadly, the conditions for qualification in medicine are as laid down in the official "Regulations" (published by Constable & Co., Ltd., 10 Orange Street, Leicester Square, London, W.C., at 6*d.* per copy, or 7*d.* post free). The student (male or female) must be sixteen years of age, and within fifteen days of beginning medical studies he shall register as a medical student (fee 5*s.*), having passed an approved Preliminary examination in general knowledge (a list is given in the "Regulations"). The medical curriculum extends to five academic years, but the close of the fifth year may be reckoned as occurring fifteen months from the date of registration as a medical student. During the period the student must pass the examinations approved or recognised by the Council. Medical students should obtain from the head of the school at which they propose to enter upon professional studies a certificate of having commenced them, and present this to the Registrar of the General Medical Council in England or to the Registrars of the Branch Councils in Scotland and in Ireland, whose addresses are:

To Registrar of the General Medical Council, 299 Oxford Street, London, W.

To Registrar of the Branch Council for Scotland, 54 George Square, Edinburgh.

To Registrar of the Branch Council for Ireland, 35 Dawson Street, Dublin.

As to the course of professional study, all the Universities of Great Britain and Ireland have Medical Schools associated with them, and conduct examinations for diplomas or degrees which are accepted for registration by the General Medical Council. There are also Corporations or Colleges of Medicine which are empowered to examine candidates and to grant licences or diplomas which are registrable by the General Medical Council. Very few students become qualified in the stipulated five years, the average being six years.

A word of caution is necessary as to the Preliminary examination which the student should take. It should be noted that the Universities do not accept for their degree courses all the Preliminary examinations which the General Medical Council accepts. Therefore the student, having selected the Medical School which is most suitable for his purpose, must bear in mind that if he is to study at a University for the purpose of obtaining its medical and surgical degrees, he must matriculate at that University after passing a Preliminary examination which it accepts. The various examining bodies which grant registrable degrees or diplomas adhere more or less closely to the

CURRICULUM OF STUDY laid down by the General Medical Council, which stipulates that in every course of professional study and examinations the following subjects should be contained:

(1) *Physics*, including the elementary mechanics of solids and fluids, and the rudiments of heat, light, and electricity; (2) *Chemistry*, including the principles of the science, and the details which bear on the study of medicine; (3) *Elementary Biology*: (4) *Anatomy*; (5) *Physiology*; (6) *Materia Medica and Pharmacy*; (7) *Pathology*; (8) *Pharmacology and Therapeutics*; (9) *Medicine*, including medical anatomy and clinical medicine; (10) *Surgery*, including surgical anatomy and clinical surgery; (11) *Midwifery*, including diseases peculiar to women and to new-born children; (12) *Theory and practice of Vaccination*; (13) *Forensic Medicine*; (14) *Hygiene*; (15) *Mental Diseases*; (16) *Anæsthetics*.

Instruction in the subjects of the first year of study (chemistry, physics, and biology) is allowed by a few

bodies (e.g., the Royal Colleges in England) to be taken at certain approved schools or teaching institutions which are not Medical Schools, and count as part of the professional curriculum, while graduates in arts or science of approved Universities are held to have completed the first year of medical study. For degrees in medicine or surgery each of the Universities requires candidates to reside or study in it for a part of the curriculum, and the rest of the course of study may be taken at some other approved school of medicine. The estimation in which the different degrees and diplomas are held varies greatly, and students must decide what qualification or qualifications they intend to take before entering upon their curriculum. The choice will generally be determined by convenience and local conditions. As a rule the medical degrees of the Universities are more highly valued than diplomas, because of the social status they confer on their holders. The rules of the various licensing colleges, however, are more elastic than those of the Universities in regard to residence, and for this reason are favoured by many students. We give in parallel columns the subjects of the curriculum, showing how they fall year by year, and the professional examinations which must be passed. This comparison of the University of London curriculum and examinations with those of the Scottish Colleges' diploma shows little difference between them so far as subjects are concerned, and as little exists between the provisions of any other two qualifying bodies, yet in practice and results there are differences.

M.B., B.S. LOND.

FIRST YEAR.—Physics, chemistry, biology (zoology and botany).

First degree examination.

SECOND YEAR.—First term: Anatomy, with dissection; elementary physiology and histology, practical physiology and histology, organic and applied chemistry. Second term: Anatomy, with dissection, histology, organic and applied chemistry.

Second degree examination, Part I. (organic and applied chemistry). Third term: Anatomy, physiology, experimental physiology, pharmacology, including materia medica and pharmacy.

THIRD YEAR.—First term: Anatomy, with dissection; physiology, chemical physiology, pharmacology. Second term: Anatomy, with dissection; physiology, experimental physiology.

Second degree examination, Part II.

FOURTH YEAR.—Winter: Medicine, surgery, general pathology, practical surgery, junior clinical surgery, minor clinical pathology. Summer: Midwifery, forensic medicine, therapeutics, junior clinical medicine, junior clinical surgery, minor clinical pathology. Winter and Summer: Hospital appointments.

FIFTH YEAR.—Winter: Medicine, surgery, general surgery. Summer: Hygiene, ophthalmic medicine, psychiatry. Winter and Spring: Hospital appointments, minor general medicine, surgical surgery, midwifery, dressings, anaesthetics, fever-hospitals, examination.

Final M.B., B.S. examination: Medicine, surgery, midwifery and diseases of women, pathology, forensic medicine, and hygiene.

Degrees in Medicine and Surgery.

In the following paragraphs, concise particulars are given of the courses and examinations for University degrees in medicine and surgery which entitle the holder to registration by the General Medical Council as a

general medical practitioner. In all cases the Matriculation examination (or a recognised equivalent) must be passed: mere registration as a medical student is insufficient.

Aberdeen University.

At least two of the five years' curriculum must be spent, and at least eight of sixteen specified subjects for M.B., Ch.B. must be taken, in the Aberdeen University, and the rest in some other University or College recognised by the University Court, and there are four Professional examinations to be passed (fees 23*l.* 2*s.*). Secretary, Mr. D. R. Thom, University of Aberdeen.

Birmingham University.

Of the five years' curriculum for M.B., Ch.B., three or four (according to circumstances) must be passed at the University. The fee for each of the first four of the five Professional examinations is 2*l.*, and for the Final 8*s.* Candidates may enter the Professional examination in chemistry, physics, and biology before commencing study in the University. Secretary, Mr. Geo. H. Morley.

Bristol University.

There are three Professional examinations for the M.B., Ch.B. degrees. Three of the five and a half years' course of study must be taken in the University. The Registrar supplies full particulars.

Cambridge University.

Students who have not taken the B.A. degree must pass the Previous examination or other examination accepted by the University, and take the medical curriculum at Cambridge or elsewhere, the minimum residence at the University being nine terms (three years). There are three Professional examinations leading up to the degree of B.C. An Act has also to be kept in the Public Schools, the candidate reading an original dissertation composed by himself on some subject approved by the Regius Professor of Physic before proceeding to the M.B. degree.

Dublin University.

At least three years of the curriculum must be spent at the University, Trinity College. The degree of Bachelor of Arts must be taken in addition to the M.B. degree. Eight examinations have to be passed during the course.

Durham University.

At least one of the five years of professional education must be spent at the University College of Medicine, Newcastle-on-Tyne, and the rest may be taken in approved medical schools. There are four Professional examinations for the M.B. degree, the examination-fees amounting to 2*l.* For further particulars address the Secretary, The College of Medicine, Newcastle-on-Tyne.

Edinburgh University.

For degrees in medicine and surgery the conditions are the same as at Aberdeen University, and the examination fees the same, but the class-fees and facilities differ, the Edinburgh Medical School being one of the most famous in the world. Professor Harvey Littlejohn is Dean of the Medical Faculty, but inquiries regarding the Preliminary examination should be addressed to Mr. James Dowie, The University, Edinburgh.

Glasgow University.

The conditions for the M.B., Ch.B. qualification are almost the same as at Aberdeen. In respect of profession studies, address Professor Néel Paton, M.D., The University. Women students should apply to the Mistress, Queen Margaret College, Glasgow.

Leeds University.

There are three Professional examinations for the M.B., Ch.B. degrees, each of which is taken in parts, the fee amounting to 15*l.* Of the five years' curriculum, two years must be spent in the University. Write as to classes, etc. to the Academic Sub-Dean, and as to the examination degrees, etc., to the Clerk to the Senate.

Liverpool University.

Degrees of M.B. and Ch.B. are granted on similar conditions as Leeds. Address the Dean of the Faculty of Medicine.

London University.

Already dealt with (see previous column). The examination-fees amount to 2*l.* External students are allowed liberal provision as to places of study. The three Professional examinations for both classes are the same.

Manchester University.

Degree arrangements are similar to Leeds. Two years of the curriculum must be passed at the University, and the Professional examinations taken there. Address the Dean of the Faculty of Medicine.

National University of Ireland

confers degrees in medicine upon persons who have pursued its prescribed course of study, including at least nine terms at one or more of its constituent colleges (Cork, Dublin, and Galway). There are four Professional examinations for the M.B., B.Ch., and B.A.O. degrees, the full five years' curriculum for which is also obtainable at the University College, Dublin.

Oxford University.

Graduates in Arts are alone eligible for degrees in medicine and surgery. The most convenient course for medical students is to take Responsions, the Preliminary Science examinations, and the Final Honour School of Physiology. The curriculum requires residence in Oxford for seven years. Full particulars from the Regius Professor of Medicine, University Museum, Oxford.

Queen's University of Belfast.

The Faculty of Medicine of Queen's University of Belfast requires that students must take at least three of the five years' course of prescribed study at the University, and pass four medical examinations.

St. Andrews University.

Degrees are granted as at the three other Scottish Universities. Medical students may take the whole of their curriculum at the University College, Dundee, or the first two years in the United College. Address Professor Fynoch, University College Medical Faculty, Dundee, for further particulars.

Sheffield University.

At least three of the five years of the professional curriculum must be taken in the University. The examination arrangements are similar to Leeds. Registrar, Mr. W. M. Abbotts, M.A.; Dean of the Faculty of Medicine, Dr. Arthur J. Hall, The University, Sheffield.

University of Wales.

For M.B., Ch.B. the scheme of study is in two parts, each extending over three academic years, and at least three years must be pursued in one of the constituent colleges. Address the Registrar, University Registry, Cathays Park, Cardiff.

Medical and Surgical Diplomas.**M.R.C.S.ENG. AND L.R.C.P.L.**

The Royal College of Physicians of London and the Royal College of Surgeons of England grant a joint diploma ("Double Qual.") for registration as a general medical practitioner. There are three Professional examinations during the five years' curriculum subsequent to registration of a medical student—viz.:

First Professional Examination is in chemistry, physics, biology, and practical pharmacy, and it may be taken immediately after passing the Preliminary examination. Candidates must produce evidence of having received instruction in all these subjects, unless they propose to postpone practical pharmacy until a later examination. The course in the first three must be studied at a medical school or other institution recognised by the Board, but it may be commenced or attended before the candidate passes his Preliminary examination. Six months' instruction in these subjects, then at a recognised institution other than a medical school, will be counted as part of the Professional curriculum if it is taken subsequent to passing the Preliminary. The subjects may be taken in three parts, but chemistry and physics must be taken together. The fee for the whole examination is 10*l.* 10*s.*

Second Professional Examination is in anatomy and physiology, as both the subjects must be passed at one time. Evidence must be produced that the candidate has spent twelve months in dissecting the whole of the human body and attended courses of lectures in anatomy, physiology, and practical instruction in physiology and histology. The fee for the second examination is 1*l.* 10*s.*

Third or Final Examination.—Before admission, the candidate must produce evidence that he has attended the specified portion of study laid down in the curriculum as set forth in the official regulations. Subjects as in the fourth and fifth years of study.

At least two years must expire after passing the second examination, and the Final cannot be completed before the expiration of five winter and five summer sessions from the date of passing the Preliminary examination. Synopses of the examinations can be obtained from Mr. Frederic G. Hlett, Secretary of the Conjoint Board, 8-11 Queen Square, Bloomsbury, London, W.C. The Committee of Management of the Board will consider special cases, arising as a result of the war, as to details of the curriculum.

DUBLIN APOTHECARIES' DIPLOMA.

The Apothecaries' Hall of Ireland grants its licence to students who have complied with its conditions in regard to curriculum and passed its three Professional examinations, the total fees for these being 25*l.* 4*s.* The Registrar, Apothecaries' Hall, 40 Mary Street, Dublin, supplies the syllabus.

IRISH DOUBLE QUALIFICATION.

The Royal College of Physicians in Ireland and the Royal College of Surgeons grant a registrable diploma after examinations in Dublin by their Conjoint Board. The Professional examinations number four. The constituent Colleges also grant separate diplomas of L.R.C.P.I. and L.R.C.S.I. For all particulars write to Mr. Alfred Miller, Royal College of Surgeons, Stephen's Green, Dublin.

LONDON APOTHECARIES' DIPLOMA.

The Society of Apothecaries of London grants a diploma in medicine, surgery, and midwifery, there being two examinations—viz., *Primary* (fee 5*l.* 5*s.*) and *Final* (in two sections; fees 10*l.* 10*s.* and 5*l.* 5*s.*) Full particulars can be obtained from Mr. Frank Haydon, L.R.C.P., Society of Apothecaries, Water Lane, Blackfriars, London, E.C.

SCOTTISH TRIPLE QUALIFICATION.

The Royal Colleges of Physicians and Surgeons of Edinburgh, with the Royal Faculty of Physicians and Surgeons, Glasgow, grant three diplomas ("Triple Qual."), which jointly entitle the holder to registration as a general medical practitioner (see p. 61). The examinations are held in Edinburgh or Glasgow, or both. Secretaries, Mr. D. L. Eadie, 50 George Square, Edinburgh, and Mr. Walter Hurst, Faculty Hall, St. Vincent Street, Glasgow.

Under certain conditions, the degrees may be taken separately. The Universities also grant the degrees of Doctor of Medicine and Master of Surgery to graduates who have taken the corresponding bachelors, on presentation of a satisfactory thesis upon a subject to which the candidate has devoted special study and work. Diplomas in public health are also granted by most of the Universities to registered medical practitioners who take a special course and pass the required examination.

Pharmacists are not, as such, exempted from any part of the curriculum or examinations, except as regards the training in practical pharmacy, and recognition of chemistry and biology lectures which they may have taken at an approved school.

Medical Education.

We outline the facilities given by recognised medical schools in the United Kingdom, and refer inquirers to the Deans or Secretaries named for fuller particulars.

ABERDEEN.—*The University Faculty of Medicine.*—The complete medical course (including class, hospital, and all examination fees for five years' curriculum, and fees for degrees) costs about 160*l.* Clinical practice is obtained in the Royal Infirmary [270 beds] and other special institutions. Dean, Professor T. Shennan.

BELFAST.—*Queen's University of Belfast.*—Complete courses (fees about 100*l.*, including clinical practice) are provided for the medical degrees of this University. Dean of the Faculty of Medicine, Professor Symmers.

BIRMINGHAM.—*University Faculty of Medicine.*—The composition fees for the M.B. and Ch.B. degrees of the University amount to 15*l.* 2*s.* 6*d.*, but the curriculum enables students to qualify for the other medical degrees and diplomas as well. Clinical instruction is obtained at the General and Queen's Hospitals [together over 500 beds]. Dean, Professor Peter Thompson.

BRISTOL.—*The University Faculty of Medicine.*—Complete curricula are available for the medical degrees of the University of Bristol and of the University of London, and the diplomas of the Conjoint Board and the Society of Apothecaries. Clinical practice is afforded at the Royal Infirmary and General Hospital [together 650 beds]. Inclusive fee (including hospital-practiced), 140 guineas. Dean, Professor E. Fawcett.

CAMBRIDGE.—*University Medical School.*—Apply to the Registry of the University, Cambridge, for full particulars as to regulations and courses of study. Clinical practice is provided at Addenbrooke's Hospital [172 beds]. Inclusive expenses average about 110*l.* per academical year for an economical student.

CARDIFF.—*University College of South Wales and Monmouthshire.*—A constituent college of the University of Wales. The first three years of the medical curriculum can be taken in the Faculty of Medicine. Fees for the Preliminary Scientific and the Intermediate examination of the University of London, 63*l.*; for the Conjoint Board (First and Second examinations), 41*l.* 10*s.* Hospital practice is obtained at King Edward VII's Hospital, D.P.H. course, 30*l.* Dean, Professor D. Hepburn.

CORK.—*University College.*—A constituent college of the National University of Ireland, for whose degrees instruction costs about 125*l.*, and for the Irish Conjoint Diploma 142*l.* Dean, Professor A. E. Moore.

DUBLIN.—*University of Dublin, Trinity College.*—All classes are open to external as well as internal students. Women are admitted to all parts of the course.

Royal College of Surgeons' Schools of Surgery (which include the Carmichael and Ledwich Schools) are under the supervision and control of the Council of the Royal College of Surgeons. Total expense of triple qualification (including examination-fees), 160*l.* 13*s.* A students' guide is supplied on application to the Registrar, Royal College of Surgeons, Stephen's Green, Dublin.

University College.—Constituent of the National University of Ireland. Fees for the four years' degree courses, 68*l.* 5*s.*; and clinical instruction costs 52*l.* 10*s.* Dean, Professor E. P. McLoughlin.

DUNDEE.—*University College.*—The full medical curriculum for the degree of the University of St. Andrews is available at this college, clinical instruction being given at the Dundee Royal Infirmary [400 beds].

EDINBURGH.—*University Faculty of Medicine.*—The minimum fees for the complete curriculum (including hospital practice) amount to about 135*l.* for the M.B. and Ch.B. degrees, with another 23*l.* 2*s.* for the four Professional examinations. Clinical experience is gained at the Royal Infirmary, etc. [total beds, 2,160]. Dean, Professor H. Littlejohn.

School of Medicine of the Royal Colleges.—The courses of instruction fulfil the requirements for the medical degrees of Edinburgh University and for other medical qualifications. There are special classes for women students. The minimum cost of the triple qualification, including examination-fees, is 120*l.* Dean's address: 11 Bristo Place, Edinburgh.

School of Medicine for Women.—The complete medical curriculum is provided. Dean, Dr. W. Russell, Surgeons' Hall, Nicholson Street, Edinburgh.

GALWAY.—*University College.*—A constituent of the National University of Ireland. The fees in the Faculty of Medicine are about the same as at Cork. Clinical teaching is given at the three Galway hospitals. Dean, Professor J. P. Pye, M.Ch., D.Sc.

GLASGOW.—The *University Faculty of Medicine, including Queen Margaret College.*—Hamilton Drive, Glasgow (School of Medicine for Women). The course for the M.B. and Ch.B. degrees (including hospital attendance) costs about 150*l.* Clinical instruction is given at the Western Infirmary [600 beds] and Glasgow Royal Infirmary [600 beds]. Dean, Professor T. H. Bryce. Information regarding the women's school is supplied by Miss Melville, Mistress of Queen Margaret College.

St. Mungo's College.—Medical School of Glasgow Royal Infirmary [600 beds], at which the clinical instruction is given. The instruction-fees for English or Scottish Conjoint qualifications are about 70*l.* Dean, Professor Robert Jardine.

Western Medical School. 44 and 46 University Avenue, Hillhead.—The classes include chemistry, anatomy, surgery, medicine, midwifery and gynaecology, ophthalmology, dermatology, oatology, and diseases of the throat and the nose. Secretary, Mr. J. N. Morton.

The Anderson College of Medicine, Dumbarton Road.—The classes qualify for all the licensing bodies and the Universities (under certain conditions). Clinical instruction is given at the Western Infirmary and the Royal Infirmary. Dean, Dr. John Macintyre.

LEEDS.—The *University Faculty of Medicine.*—The complete medical curriculum costs 195*l.* 16*s.* (including all fees and cost of books, microscope, etc.). Clinical work is provided at the Leeds General Infirmary [500 beds]. Dean, Professor De Burgh Birch, C.B.

LIVERPOOL.—The *University Faculty of Medicine.*—The composition-fees for M.B. and Ch.B. course amount approximately to 123*l.* Clinical instruction at the Royal Infirmary and other local hospitals [together 1,140 beds] costs 42*l.* Dean, Professor J. M. Beattie.

LONDON MEDICAL SCHOOLS.

The following Medical Schools are constituents of the University of London:

Charity Cross Hospital Medical College. Chandos Street, W.C. [200 beds].—The approximate cost of medical education is given as 199*l.* 5*s.* (including composition-fee 120*l.* 15*s.*, examination-fees 42*l.*, books and instruments-fee). Clinical instruction costs 57*l.* 15*s.* Dean, Dr. William Hunter.

Guy's Hospital. London Bridge, S.E. [620 beds].—Fees, about 160*l.* There is a residential college in connection with the medical school. Dean, Dr. H. C. Cameron.

King's College Hospital Medical School. Denmark Hill, S.E.—Preliminary and Intermediate portions are taken at King's College, but composition-fee can be arranged (157*l.* 10*s.* for University course or for Conjoint course). The course for the Final examination only costs 84*l.* Dean, Mr. H. Willoughby Lyle, F.R.C.S., etc.

King's College Faculty of Science (Medical Division), Strand, W.C.—Fees for the University of London courses: First examination for medical degrees 26*l.* 5*s.* Second examination 60*l.* 18*s.* The Conjoint Board course fees are: First examination 21*l.* Second examination 60*l.* 18*s.* Dean, Professor W. D. Halliburton.

London Hospital Medical College. Turner Street, Mile End, E. [922 beds].—Fees, 31*l.* 10*s.* per annum, with entrance-fee of 21*l.* Dean, Professor W. Wright. Secretary, Mr. E. J. Burdon.

London (Royal Free Hospital) School of Medicine for Women. 8 Hunter Street, W.C.—Composition-fees for the degrees of University of London or the Conjoint Board qualification, 160*l.*; other courses cost 140*l.* Clinical instruction at the Royal Free Hospital [184 beds]. Dean, Miss L. B. Aldrich-Blake, M.D.

Middlesex Hospital. Cleveland Street, W. [440 beds].—The composition-fees are: For general students, 141*l.* 15*s.*; and for University of London students, 152*l.* 5*s.* Dean Dr. H. Campbell Thomson. Sub-Dean, Dr. J. Strickland Goodall.

St. Bartholomew's Hospital and College. West Smithfield E.C. [744 beds].—Fees, by a single payment, 173*l.* 5*s.* or 47*l.* 5*s.* annually for four years. Dean, Dr. T. W. Shore.

St. George's Hospital. Hyde Park Corner, S.W. [440 beds] with a convalescent branch at Wimbledon.—A purely clinical school, the annual composition-fee being 31*l.* 10*s.* Dean, Dr. R. Salusbury Trevor.

St. Mary's Hospital. Cambridge Place, Paddington, W. [305 beds].—Fees for full curriculum for Conjoint Board 140*l.*, or for University degrees, 145*l.* (5*s.* more if paid in instalments). Dean, Sir John Broadbent, Bart.

St. Thomas's Hospital Medical School. Albert Embankment, S.E. [620 beds].—Fees for Preliminary subjects 15*l.* 15*s.* per annum; second-year students, entrance 21*l.* annual fee for all classes 31*l.* 10*s.*; fourth-year student (after second M.B.). entrance 10*l.* 10*s.*; annual fee 31*l.* 10*s.* Dean, Dr. Edward Stainer.

University College, Faculty of Medical Sciences. Gower Street, W.C.—Fees: University of London. First medical examination course, 27*l.* 6*s.*; Second examination course 60*l.* 18*s.* Composition-fees for the Conjoint Board and Society of Apothecaries' courses, 82*l.* 19*s.* for the First and Second courses. Clinical instruction is taken elsewhere, e.g., at University College Hospital Medical School [30 beds]. Fees: Final M.B. course or Conjoint Board, 84*l.* Clinical instruction, perpetual fee, 47*l.* 5*s.* Dean, Mr. J. Herbert Parsons, F.R.C.S., etc.

Westminster Hospital Medical School. Broad Sanctuary and Caxton Street, S.W. [215 beds].—Annual composition fee, 26*l.* 5*s.* Dean, Dr. S. A. Kinnier Wilson.

MANCHESTER.—*University Faculty of Medicine.*—Composition-fee for M.B. and Ch.B. degrees 73*l.* 10*s.*, and Conjoint Board examinations 87*l.* 3*s.* Clinical practice at the Royal Infirmary and associated hospitals [in all 1,109 beds]; composition-fee, 42*l.* Dean, Professor G. Elliot Smith.

NEWCASTLE-ON-Tyne.—*University of Durham College of Medicine.*—Clinical instruction is given at the Royal Victoria Infirmary [400 beds]. College fees, 84*l.*; and hospital fees, 36*l.* 15*s.*

OXFORD.—The University.—The instruction in natural science is carried on for the most part at the Museum, the clinical work being taken at a medical school.

ST. ANDREWS.—The *University Faculty of Medicine.*—The full curriculum is provided at *University College, Dundee* or the first two years may be taken at the United College, St. Andrews. Fees for the complete course (exclusive examination-fees), 136*l.* 10*s.* Clinical practice is given at Dundee Infirmary [400 beds]. Dean, Professor Kynoch.

SHEFFIELD.—*University Faculty of Medicine.*—Composition-fees: University Course 80*l.* and hospital practice (Royal Infirmary and Royal Hospital, over 500 beds) 49*l.* 17*s.* 6*d.* Dean, Dr. Arthur J. Hall.

Registration as a general medical practitioner after qualification is not compulsory, but the Medical Act provides that certain appointments are only open to registered practitioners, who alone, also, may recover fees for professional services. Consequently everyone who qualifies should register. The fee is 5*l.*, and it is payable to any of the registrars.

Commissions in the Royal Army Medical Corps are obtainable by registered medical practitioners. For particulars see the official pamphlet, "Regulations for Admission to the Royal Army Medical Corps," obtainable from Wynn and Sons, Ltd., Fetter Lane, London, E.C., price 1*s.* (postage extra). For similar appointments in the Indian Medical Service, write to the Military Secretary, India Office, London, S.W., and for the Royal Navy to the Director-General, Medical Department, Admiralty, London, S.W.

Dentistry.

By the Dentists Act, 1878, only persons registered as dentists or as medical practitioners in accordance with the regulations of the General Medical Council are entitled to take or use the name or title of "dentist," either alone or in combination with any other words, or of "dental practitioner," or any name, title, addition, description, or addition to a name, designation, or description, whether expressed in words or by letters, or partly in one way and partly in another, indicating that they are registered under the Act or *specially qualified* to practise dentistry.

The preliminary procedure in order to become a registered dentist is the same as that for medicine. One of the Preliminary examinations recognised for registration as a medical student must be passed, and the student must then, at an age not under sixteen and at the commencement of apprenticeship or study, register as a dental student. The minimum period of professional study is four years. One year of *bona-fide* apprenticeship to a registered dentist, served after registration as a dental student, is reckoned in the four years required. During the curriculum the student must attend certain courses of instruction covering specified periods at a recognised medical school, and must attend, for two years, the practice of a recognised dental hospital or of the recognised dental department of a general hospital, and receive two years' practical instruction in mechanical dentistry from a registered dentist or in the mechanical department of a recognised dental school and hospital. On completion of the approved course of study, the examinations of a licensing body must be passed.

DENTAL DIPLOMAS.

The most generally favoured registrable qualifications are the College Diplomas in Dental Surgery. For these, students must take the curriculum laid down by the College they select, and must pass the required examinations. The requirements of the Royal College of Surgeons of England are as follows :

First Course.—Theoretical and practical chemistry and physics, 180 hours' lectures and practical work in chemistry and 120 hours' lectures and practical work in physics. Pass the *Preliminary Science examination* in chemistry and physics, same as that for L.R.C.P. and M.R.C.S.

Second Course.—Two years' instruction in mechanical dentistry; lectures on dental metallurgy, with a practical course; lectures on dental mechanics, with practical work, including the manufacture and adjustment of six dentures and six crowns. Pass the *First Professional examination*—(I.) Mechanical dentistry; (II.) dental metallurgy.

Third Course.—Lectures on dental anatomy and physiology; dental histology, dental surgery, with practical dental surgery; surgery of the mouth, dental bacteriology, dental materia medica, and practical instruction in anaesthetics—these at a dental school and hospital; and the following in a medical school: Lectures on anatomy, physiology, with practical physiology; surgery, and medicine, dissections for twelve months. Practice of surgery and clinical lectures on surgery in a hospital for twelve months. Pass the *Second Professional examination*—(I.) General anatomy and physiology, general pathology and surgery; (II.) dental anatomy and physiology, dental pathology and surgery, and practical dental surgery. Before the final subjects are entered for, the candidate must have completed the four years' curriculum and be twenty-one years old.

Similar conditions apply to the qualifications of the following colleges, full particulars of which may be obtained from the addresses given :

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Queen Square, London, W.C.—Examination and diploma fees, 20 guineas.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—Three years' instruction in medical dentistry requisite. Examinations, £15. 15s. Clerk, Mr. D. L. Eadie, 50 George Square, Edinburgh.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—Similar to Edinburgh. Address Mr. Walter Hurst, 242 St. Vincent Street, Glasgow.

ROYAL COLLEGE OF SURGEONS IN IRELAND, Stephen's Green, Dublin.—Examination and diploma fees, 21l.

UNIVERSITY DEGREES AND DIPLOMAS.

BIRMINGHAM.—The degrees are Bachelor of Dental Surgery (five years' curriculum cost 149l. 10s.) and Master of

Dental Surgery, and the diploma Licentiate in Dental Surgery, but the B.D.S. degree is only conferred upon those who are L.D.S.

BRISTOL.—The degrees are B.D.S. and M.D.S. Inclusive fee for B.D.S. 190 guineas. The L.D.S. costs 168 guineas.

DUBLIN.—Trinity College (University of Dublin) grants degrees of B.Dent.Sc. and M.Dent.Sc. to its arts graduates who have taken the dental curriculum and passed examinations.

DURHAM.—A licence is granted, for which there are four examinations; fees (including diploma) 15l.

LEEDS.—The degrees are B.Ch.D. and M.Ch.D. There is also L.D.S. The approximate cost of the degree, including pupilage-fee and cost of books, instruments, etc., is put down at 27l. 14s. 6d., and of the diploma 250l. 14s.

LIVERPOOL.—Lecture-fees for B.D.S. degree 67l. 10s., clinical practice 21l. Fees for L.D.S. (Liverpool), 58l. 10s.; other licensing bodies, 61l. 10s.; mechanical dentistry and hospital practice, 100l. Address Director of Dental Education.

LONDON.—Degree of Master of Surgery in Branch II. Dental Surgery open only to London graduates in medicine. Examination-fee is 20l.

MANCHESTER.—The B.D.S. curriculum lasts five years, and there are four examinations. Composition-fees: B.D.S., 63l.; L.D.S. (Manchester) 57l. 15s., (R.C.S. Eng.) 63l. Dental Hospital fees, 130l. or 100l.

Dental Schools.

DUBLIN.—School of Dentistry, Lincoln Place. Fees: 12l. 12s. for hospital practice, 6l. 6s. for dental lectures, composition-fee 15l. 15s. per annum. Dean, Mr. George Sheppard.

EDINBURGH.—Dental Hospital and School, 31 Chambers Street. Fee, 31l. 10s. for two years' hospital practice and outfit of instruments. The professional study and diploma cost 164l. 19s. Dean, Mr. William Guy, 11 Wemyss Place.

GLASGOW.—Dental Hospital and School, 158 Renfrew Street and 15 Dalhousie Street. Dean, Mr. W. D. Anderson. Dental lectures and two years' hospital practice cost 31l. 10s.

LONDON.

Charing Cross Hospital Dental Department, Chandos Street, W.C.—Composition-fee (two years), 47l. 5s. Dean, Dr. William Hunter.

Guy's Hospital Dental School, London Bridge, S.E.—Complete curriculum for L.D.S. provided; composition-fee, 113l. Instruction in dental mechanics costs 52l. 10s. per annum. Inclusive fee for students for L.R.C.P., M.R.C.S., and L.D.S. Eng. courses of instruction is 199l. 10s. Dean, Dr. H. C. Cameron.

King's College, Strand, W.C.—Composition-fee for L.D.S. course, 36l. 15s. Dean, Professor W. D. Halliburton.

London Hospital Dental School, Mile End, E.—Fees: Dental mechanics (two years), 105l.; full L.D.S. course, 212l. 10s. Dean, Professor W. Wright. Secretary, Mr. E. J. Burdon.

London (Royal Free Hospital) School of Medicine for Women, 8 Hunter Street, Brunswick Square, W.C.—Courses and bursaries for dental students. Dean, Miss L. B. Aldrich-Blake, M.D., M.S.

Middlesex Hospital, Berners Street, W.—Composition-fee, 56l. 14s. Dean, H. Campbell Thomson, M.D., F.R.C.P. Sub-Dean, J. Strickland Goodall, M.B., M.R.C.P. (Lond.), F.R.C.S., F.R.S. (Edin.).

National Dental Hospital and College, University College Hospital Dental School, Great Portland Street, W.—Fee for complete dental curriculum, comprising two years' mechanics, chemistry, physics, anatomy, and physiology, and two years' hospital practice, mechanics, surgery, and dental lectures, taking four years in all, 180 guineas in one payment, or one payment of 62 guineas and three payments of 41 guineas. Dean of the Dental School, Mr. Sidney Spokes.

Royal Dental Hospital of London, School of Dental Surgery, Leicester Square, W.C.—Instruction for L.D.S. (in dental mechanics, two years' hospital practice and lectures) costs 150l.; for hospital practice and lectures only, 53l. 3s. The approximate cost of education for the diploma (including fees, books, and instruments) is given as 280l. 14s. Dean, Mr. W. H. Dolamore.

St. Bartholomew's Hospital, Smithfield, E.C.—Dean of the Dental School, Dr. T. W. Shore.

St. George's Hospital, Hyde Park Corner, S.W.—Annual composition-fee for dental students, 15l. 15s. Dean, Dr. R. S. Trevor.

St. Mary's Hospital, Paddington, W.—Dental course, 52l. 10s. Dean, Sir John Broadbent, Bart.

St. Thomas's Hospital, Albert Embankment, S.E.—Dean, Dr. Edward Stainer.

Westminster Hospital, Broad Sanctuary, S.W.—Fees for lectures and general surgical practice for R.C.S. diploma, 52l. 10s. (if two years only are spent on hospital portion of course). Dean, S. A. Kinnier Wilson.

MANCHESTER.—The Dental Hospital, Oxford Road, in association with the University of Manchester and the Royal Infirmary. Fee for whole dental hospital practice and training in mechanical dentistry for B.D.S. degree, 130l., or L.D.S. diploma 100l. Dean, Mr. J. Hilditch Mathews.

NEWCASTLE-ON-Tyne.—Durham College of Medicine and the Newcastle-on-Tyne Dental Hospital and School, Handysides Buildings, Percy Street. Composition-fee, 43l. 1s.

SHEFFIELD.—The total minimum fees in the University Dental School for the R.C.S. diploma are given at 166l. 10s.

Veterinary Surgery.

The veterinary profession may offer special advantages to young men in the near future. At the present moment the number of qualified veterinary surgeons in the country is less than it has been for twenty years past, but it has to be recognised that it is difficult for the vet. to get a living nowadays out of cattle alone, and he must be prepared to treat all domestic animals, especially pets. Moreover, new legislation in regard to milk and tuberculosis requires a better supply of veterinary inspectors. Owing to the war, every veterinary surgeon in the country who can be spared from general practice and official duties is employed by the War Office, and the supply is still far short of the demand. The veterinary profession, therefore, offers particularly good prospects to young men interested in animal life. It is probable that the number of officers of the Army Veterinary Corps will be very considerably increased at the end of the war, while in civil life the number of openings for meat, milk and cattle inspectors will, when the new Milk Acts, etc., come into force, be much more numerous than at present. Further, in both the Home and Colonial Services, particularly the Indian Civil Veterinary Department, appointments are vacant for which no candidates are at present to be obtained.

Veterinary practice in Great Britain and Ireland is subject to the provisions of the Veterinary Surgeons Act 1881, under which the Royal College of Veterinary Surgeons, Red Lion Square, London, W.C., is empowered to grant licences to practise and to exercise powers similar to those of the General Medical Council. Before commencing study at one of the affiliated colleges, the student must prove to the college which he enters that he has passed an examination in general knowledge similar to those recognised by the General Medical Council. The course for the diploma of M.R.C.V.S. lasts over a period of four years, with an examination at the end of each academic year. Particulars of the examinations may be obtained from Mr. Fred. Bullock, Secretary, Royal College of Veterinary Surgeons, 10 Red Lion Square, London, W.C. The subjects are substantially those of the Professional examinations viz. :

First Professional Examination.—Anatomy of the domesticated animals; Bones, ligaments, joints; chemistry and elementary physics; elementary zoology and botany.

Second Professional Examination.—Anatomy of the domesticated animals; histology and physiology; stable management, the manipulation of animals, and the principles of shoeing.

Third Professional Examination.—Morbidity, anatomy, pathology, and bacteriology; materia medica, pharmacy, therapeutics, and toxicology; veterinary hygiene and dietetics.

Fourth Professional Examination.—Principles and practice of veterinary medicine and clinical medicine; principles and practice of veterinary surgery, clinical surgery, obstetrics, and shoeing; meat inspection.

Veterinary Colleges

(Affiliated to the R.C.V.S.)

DUBLIN.—*Royal Veterinary College of Ireland*, Pembroke and Shelbourne Roads, Ballsbridge.—Fees, 21*l.* per session, with 1*l.* entrance-fee. Principal, Professor A. E. Mettam. Registrar, Mr. G. E. Haines.

EDINBURGH.—*Royal (Dick) Veterinary College* (founded 1823).—Entrance and class fees for the complete curriculum amount to 72*l.* 9*s.*, in four payments, with an extra fee of 5*l.* 5*s.* for each subsequent period of ten weeks. Principal, Professor O. Charnock Bradley.

GLASGOW.—*Glasgow Veterinary College* (established 1862; incorporated 1909), Buccleuch Street, Garnethill.—The fee for the complete course is 72*l.* 9*s.* Principal, Professor J. McCall.

LIVERPOOL.—*The University Veterinary School* gives a university training for the M.R.C.V.S. Fees for the complete curriculum, 75*l.* 12*s.* Secretary, Mr. J. Share-Jones.

LONDON.—*Royal Veterinary College* (founded 1791; incorporated 1875), Great College Street, Camden Town, N.W. Educational fee for the four years' course of instruction, 84*l.*, paid in four instalments, and 2*l.* 12*s.* 6*d.* library fee. There are also fees for occasional students, from 3*l.* 3*s.* to 8*l.* 8*s.* per subject, and post-graduate course, fee 10*l.* 10*s.* Principal and Dean, Professor Sir John McFadyean, M.B., M.R.C.V.S., etc.

These colleges are recognised by County Councils and educational authorities as institutions at which scholarships are tenable. Full details of the various courses are given in the calendars of the various colleges, which are obtainable from the respective secretaries.

The Fellowship examination of the Royal College in one of the following subjects—Anatomy, physiology, pathology, helminthology and entomology, pharmacology and toxicology, medicine, tropical medicine, surgery, or sanitary science—is open to members of two years' standing. Veterinary-science degrees are granted by the Universities of Bristol, Edinburgh, Glasgow, Liverpool, London, and Manchester to candidates who matriculate and take the prescribed course of study. These degrees, however, do not in themselves enable the graduate to practise as a veterinary surgeon.

Science.

Technical and scientific education in Great Britain and Ireland has made tremendous progress during the past two decades, and in the near future still further developments may be looked for. There has been in the past a tendency on the part of manufacturers to undervalue the services of men who had a scientific and technological education and to rate such knowledge and training as of secondary importance compared with business knowledge and training. The European war, however, by revealing to us the extent to which we were dependent on Germany for our supplies of fine chemicals, dyes, and certain other manufactures, has had the effect of focussing attention on the necessity of providing a constant stream of highly qualified young scientists from our colleges and technical schools to the laboratories of our manufacturers, who are beginning to realise the value and the necessity of research and scientific control as aids to industrial progress. The works chemist is becoming more and more an important factor in modern industrial undertakings, and while he is frequently a specialist who has obtained the greater part of his training in the industry itself, the advantages of utilising the services of young scientists who have first undergone a general training are forcing themselves on manufacturers.

A science degree is accepted as evidence of theoretical training, but graduates in science have hitherto found, as a rule, that there is no ready market for them until they have had actual training in the industry to which they propose to devote themselves. It is only after

such technical training that they are able to command adequate remuneration, and on this account the qualifications of the Institute of Chemistry are more highly valued, as they indicate a practical training in one or more branches of chemistry.

There are now in most large centres technical institutes which provide day and evening courses in science. Such institutions have done much valuable work, particularly in connection with the industries of the areas in which they are situated, by providing courses of lectures and practical work bearing on particular industries. In many cases these technical institutes are affiliated to the universities, and it is possible for students to proceed to degrees in science, taking out their classes partly at the technical institute and partly at the university. Along with these technical institutes there have developed a number of colleges of science and special schools in connection with the universities, in which the courses of study are directed to enabling students to obtain degrees in science. These courses of study vary with the object the student has in view, but may be divided broadly into (a) pure science and (b) applied science. The elementary training is the same for both classes of students, but ultimately the applied-science students take up the special study of the particular branch in which they are interested—e.g., agriculture, engineering, etc.—and finally proceed to a degree in these subjects. Pure-science students devote themselves to the further study of pure chemistry, botany, etc., in which degrees are obtainable, and generally find employment in the teaching profession.

Science Degrees

are granted by all the universities in Great Britain and Ireland. In the case of London University, degrees are granted to external students *sine curriculo*, but in the others certain of the subjects must be taken at the particular university whose degree is desired, the rest being taken elsewhere. The subjects of the curriculum vary with the object the student has in view, but the duration of the course of study is approximately the same in all cases, covering a period of three years, examinations being held during each academic year. Those entering upon a science course for a degree must pass the Preliminary examination in science (or its recognised equivalent) of the university which grants the degree. The Preliminary examination in science is similar to that for medical students, but includes, as a rule, a higher standard of mathematics. Particulars of the various branches of pure and applied science in which degrees are granted, and the necessary courses of study are given in the Calendars of the respective colleges, to which reference should be made.

The London science degrees are the foremost in this country, just as they were the first. The Regulations about them can be obtained on application to the Principal, University of London, South Kensington, London, S.W. Degrees are granted to internal and external (*sine curriculo*) students, the former taking a definite curriculum at an approved place of learning. A year after passing the Matriculation examination a student may enter for the *Intermediate examination* (fee 5*l.*), taking four subjects from the following, including at least one from the first three: Pure mathematics, applied mathematics, experimental physics, chemistry, botany, zoology, geology, military science, and, in and after 1916, general physiology (internal students only). Candidates choosing the latter as one of their subjects are also required to take chemistry. External candidates may take honours in any subject except military science, but little advantage accrues from this, as the compulsory number of subjects is not decreased thereby. The *Final examination* (fee 5*l.*) may be taken one year after passing the Intermediate, but three years must elapse between the Matriculation and Final examinations. Three out of thirteen prescribed subjects are to be taken in the *Final examination*; Honours candidates take only one subject (of a much higher standard) along with an appropriate subsidiary subject. Degrees (including the *Doctorate in Science*) are also granted by research.

The English provincial, Irish, and Scottish Universities confer the B.Sc. degree (*cum curriculo*). As a rule, the curriculum extends to three years after matriculation, and examinations are held at the end of each session. The degrees are granted in several branches—*e.g.*, agriculture, zoology, botany, chemistry, engineering, mathematics, and physics. In the earlier stage of the curriculum all students study together on the same subjects, then are gradually differentiated into their special subjects. Subsequent to graduation as Bachelor of Science the degrees of D.Sc. and D.Sc. are granted on conditions specified by the Universities.

Diplomas for Chemists.

In professional chemistry the qualifications of the Institute of Great Britain and Ireland are the most sought after by pharmacists, for whom Branch E (analysis of foods and drugs, water, etc.) possesses special attractions. The Institute was founded in 1877 to elevate professional chemistry by promoting the better education of persons serious of becoming analysts by examining candidates and granting certificates of competency and by insisting on the observance of strict rules of professional conduct. Examinations are conducted periodically for the Associatehip of the Institute (A.I.C.). Associates who have been continuously engaged in applied chemistry for three years may obtain the Fellowship (F.I.C.), which is now practically essential for public appointments—*e.g.*, public analyst. appended are officially revised particulars of the conditions of registration and examination:

Studentship.—Candidates must register at the Institute (Russell Square, London, W.C.) as students. They must be at least seventeen years of age and have passed an approved Preliminary examination, and at the time of application be training at a recognised institution or under a Fellow of the Institute. Annual registration-fee, 5*s.*

Intermediate Examination.—The course of study required includes theoretical and practical chemistry, physics, mathematics, and a fourth subject selected from the following: Higher physics, advanced mathematics, mechanics and chemical engineering, metallurgy, geology and mineralogy, physiology, bacteriology, agriculture, elementary botany, and elementary biology. Candidates must have studied the requisite subjects at an approved college for two years, or have been pupils with a Fellow of the Institute for two years and attended college for two more years, or have graduated in chemistry and physics at a recognised university. Examination-fee, 5*l.* 5*s.*

Final Examination.—In addition to a general knowledge of chemistry, special knowledge is required in the one branch to be selected by the candidate—viz., mineral chemistry, metallurgical chemistry, physical chemistry, organic chemistry, analysis of food, drugs, fertilisers and feeding-stuffs, soils, and water (including a compulsory examination in therapeutics, pharmacology, and microscopy), or biological chemistry. Candidates for the examination in chemistry of food and drugs, etc., are required to produce evidence of training in elementary botany. Candidates in the branch of biological chemistry must show that they have taken a course of elementary biology. All candidates for the Final examination are required to translate French and German technical literature into English, with the aid of dictionaries, to the satisfaction of the examiners. Candidates who have taken first or second class Honours in chemistry, or have obtained special distinction in chemistry for the degree examination of an approved university, can, generally speaking, be admitted directly to the Final examination. Examination-fee 5*l.* 5*s.*, or 10*l.* 10*s.* for those who are excused the Intermediate.

Associates or Fellows are allowed to enter for further examinations in any of the following branches only: (1) Food and drugs to qualify for public analyst, fee 5*l.* 5*s.*; (2) biological chemistry, fee 5*l.* 5*s.*; (3) special examination in technological chemistry, for which practical technological training is required in the branch selected—*e.g.*, gas-manufacture, steel-manufacture, or the fat and oils industry—fee 3*l.* 3*s.* The entrance-fee to the Fellowship is 5*l.* 5*s.* Annual subscription 1*l.* 1*s.*

Science Schools.

The chief institutions at which instruction in pure science and technological subjects is available are enumerated below, with concise particulars as to the courses. For further particulars students should apply to the Secretary of the institution they propose to enter, giving full particulars of the courses they wish to follow, as many institutions make special arrangements.

ABERDEEN.—*University.*—Degree courses in science. *Robert Gordon's Technical College* includes a well-equipped Chemical Department, as well as the Pharmaceutical Department (p. 54) and other classes in applied science.

ABERYSTWYTH.—*University College of Wales.*—Fee for the science course, 16*s.* per session, inclusive of practical work. Registration-fee, 1*s.*

BANBURY.—*Municipal School.*—Evening class in chemistry; fee, 7*s.* 6*d.* to 15*s.* per term.

BANGOR.—*University College of North Wales.*—Inclusive fees as at Aberystwyth.

BARROW-IN-FURNESS.—*Technical Schools, Abbey Road.*—Evening classes in chemistry are available.

BELFAST.—*Queen's University.*—Class fees in the Faculty of Science, from 1*l.* 1*s.* to 3*l.* 5*s.* each subject, except practical chemistry, the fee for which is 7*s.* 7*i.*

BIRMINGHAM.—*University.*—B.Sc. degree course in pure science costs from 15*l.* 1*s.* to 28*l.* per annum. *Municipal Technical School, Suffolk Street.*—Evening classes in chemistry, botany, and physics; fees, 5*s.* to 10*s.* per session (botany from 2*s.* 6*d.*).

BLACKBURN.—*Technical School.*—Day and evening classes are available in chemistry, physics, and botany.

BRADFORD.—*Technical College.*—Day technological courses in chemistry and chemistry of dyeing. Fee, 16*s.* 16*s.*

BRIGHTON.—*Municipal Technical College.*—Day courses for University of London examinations; fee, 5*l.* 5*s.* per term.

BRISTOL.—*University.*—Degree courses in science, B.Sc., M.Sc., D.Sc.; also evening classes in chemistry and botany. *Merchant Venturers' Technical College.*—Chemistry, physics, and nature study classes (evening) 7*s.* 6*d.* to 10*s.* per subject.

CARDIFF.—*University College of South Wales and Monmouthshire.*—Classes are given in science subjects.

CORK.—*University College.*—A constituent College of the National University of Ireland. Class fees usually 1*l.* to 3*l.*, except practical chemistry and post-graduate courses, 5*s.* each.

DERBY.—*Technical College.*—Classes in chemistry, botany, and physics. Fees: Day, 10*s.* 10*s.* per course, or 10*s.* 6*d.* per subject per term; evening, 10*s.* 6*d.* to 1*l.* 1*s.* per annum.

DUBLIN.—*Royal College of Science.*—Three years' course for A.R.C.Sc.I. in chemistry (pure and applied) and other branches. Similar to the Royal College in South Kensington, this also being a Government School for instructing teachers and the like.

DUNDEE.—*University College.*—Day classes in botany, chemistry, and physics; fees, 1*l.* 1*s.* 6*d.* to 4*l.* 4*s.* for each winter or summer session. *Technical College.*—Central institute for eastern counties of Scotland for technical and art instruction, particularly engineering and textile.

EDINBURGH.—*Heriot Watt College, Chambers Street.*—The day chemistry course is recognised by the University of Edinburgh and the Institute of Chemistry; composition-fees, 12*l.* 12*s.* to 16*l.* 16*s.* for the winter course and 3*l.* 5*s.* to 6*l.* 6*s.* for the summer laboratory course. Evening classes in chemistry, botany, physics, pharmacology, and mycology cost from 5*s.* to 21*s.* per session.

EXETER.—*Royal Albert Memorial University College.*—The composition-fee for the degree course in science is 12*l.* 12*s.* to 18*l.* 18*s.* per annum. Evening classes in science, 5*s.* to 10*s.* per subject each session.

GALWAY.—*University College.*—A constituent College of the National University of Ireland. Courses and fees as at Cork.

GLASGOW.—*University.*—The class-fees for the degree courses in science range from 1*l.* 1*s.* to 4*l.* 4*s.* per session for each subject, with higher fees (10*s.* 10*s.*) for practical chemistry. There are also inclusive fees. *The Royal Technical College.*—Day classes in chemistry, 1*l.* 1*s.* 6*d.* to 3*l.* 5*s.* The evening classes include chemistry, technical chemistry (oils and fats), fuel, gas-manufacture, sugar-manufacture, dyeing, physics, botany, and bacteriology; fees, from 2*s.* 6*d.* to 2*l.*

HALIFAX.—*Municipal Technical College.*—Evening classes in chemistry, 7s. 6d. per course. Day classes, 4l. 4s. per course.

HUDDERSFIELD.—*Technical College.*—Full-day (fee, 6l. 6s. per session) and evening courses (fee, 15s. per session) in chemistry, physics, botany, and other science and technological subjects.

HULL.—*Municipal Technical College, Park Street.*—Evening classes in organic and inorganic chemistry; fees, 7s. 6d. to 10s. per course. B.Sc. day course 3l. 3s. per term.

LANCASTER.—*The Storey Institute.*—Evening classes in chemistry, physics, and botany; fees, 7s. 6d. per course (including practical work), or 4s. per subject.

LEEDS.—*University.*—The composition-fee for science degree course is 27l. 11s. per annum for the first three years and 21l. 11s. for the fourth year. *Central Technical School, Cookridge Street.*—The sessional fee for the evening courses in chemistry is 7s. 6d. to 15s.

LIVERPOOL.—*University.*—Degree courses in science; fees, 3l. to 4l. per course. Laboratory, 6l. to 21l.

LONDON.

The institutions marked * are schools of the University of London, and in those marked ? the teachers are recognised by that University.

* **IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY.** South Kensington, S.W.—This is a national institution, and comprises the Royal College of Science, the Royal School of Mines, and the City and Guilds (Engineering) College. Year by year the College gathers students who have gained science scholarships in the examinations conducted under the Board of Education, including the Royal Exhibitions and National and Whitworth Scholarships. Government chemists are also trained at the Royal College, and private students are received for systematic training to qualify them for various pursuits in applied science. Entrants should have passed the Matriculation examination of the London University or its equivalent or the Entrance examination of the College. The courses of instruction extend to three years at least, and are fully set forth in the Calendar of the Imperial College (Extr. & Spottiswoode, Ltd., 6d.). The fees vary from 36l. 10s. to 45l. 10s. a year. The diploma of A.R.C.S. (Associate of the Royal College of Science) is granted in mechanics, physics, chemistry, botany, zoology, and geology after three years' study; of A.R.S.M. after four years' training in mining, metallurgy, and the technology of oils, etc.; and of A.C.G.I. after three years' study in engineering. In all cases examinations are held in each academic year on the work of the year. The diploma of the Imperial College of Science and Technology (D.I.C.) is also awarded on similar conditions.

+ **BATTERSEA POLYTECHNIC.** Battersea Park Road, S.W.—Complete day and evening courses in chemistry, botany, physics, and engineering. There are also special evening classes in bacteriology; food and drug analysis; oils, fats, and soaps; and "recognised" London B.Sc. courses. Fees range from 1l. 5s. to 13l. 15s. per session for day students and from 5s. to 12s. 6d. per session for evening classes.

+ **BIRKBECK COLLEGE.** Chancery Lane, E.C.—Complete courses (day and evening) for University of London science degrees and other examinations in science. Secretary, Mr. H. Wells Eames.

+ **BOROUGH POLYTECHNIC INSTITUTE.** Borough Road, S.E.—A series of ten technical lectures on essential oils will commence in September. Fee, 5s. or 10s., including practical work. Foodstuffs, electro-chemistry, and laundry materials are the subjects of other courses. Chemistry classes are also held, beginning in September; fees, 5s. to 10s. per session.

+ **CITY OF LONDON COLLEGE.** White Street, Moorfields, E.C.—Evening classes in chemistry (pure and commercial) and botany cost 15s. to 30s. per session for non-members.

* **EAST LONDON COLLEGE.** Mile End Road, E.—Classes in chemistry, mathematics, physics, and botany. Intermediate, Final, and Honours B.Sc. courses: day 10l. 10s., evening 5l. 5s.

* **KING'S COLLEGE.** Strand, W.C.—The composition-fee in the Faculty of Science is 3l. 10s. per annum. Dean: Professor S. A. White, M.A.

+ **NORTHERN POLYTECHNIC INSTITUTE.** Holloway, N.—The composition fees for the Intermediate and Final B.Sc. courses are: Day, 15l. per annum; evening, 2l. 10s. to 5l. 15s. per session. Evening classes in chemistry, botany, physics, and photography cost from 5s. to 50s. each subject.

* **ROYAL HOLLOWAY COLLEGE.** Englefield Green, Surrey.—For women students only, mainly residential. Degree courses in science; fee, 33l. 6s. 8d., or without residence, 12l.

+ **SIR JOHN CASS TECHNICAL INSTITUTE.** Jewry Street, Aldgate, E.C.—Evening courses in chemistry, physics (fees, 4s. to 10s.), also on fermentation industries, fuel, metallurgy, and mining (fees, 5s. to 10s.). Composition-fees for B.Sc. course, from 30s. to 3l.

+ **SOUTH-WESTERN POLYTECHNIC.** Mansfield Road, Chelsea, S.W.—Day and evening courses in chemistry and botany. Fees for the B.Sc. course: Day, 15l.; evening, 3l. per session. Classes are also held on food and drugs analysis. The Institute re-opens in September.

+ **TECHNICAL COLLEGE.** Leonard Street, Finsbury, E.C.—Constituent of City and Guilds of London Institute. Fees for courses in industrial and technical chemistry, under the direction of Professor R. Meldola, F.R.S., 20l. per session. Electrical, civil, and mechanical engineering are features of this College. Full particulars are given in the official programme, which may be had from the Principal.

* **UNIVERSITY COLLEGE, LONDON.** Gower Street, W.C.—Fees for three years' B.Sc. course, including chemistry, 111l. 1s.

WANDSWORTH TECHNICAL INSTITUTE. High Street, Wandsworth, S.W.—Evening classes in science; fee, 5s. to 15s. per subject.

+ **WEST HAM TECHNICAL INSTITUTE.** Romford Road, E.—Evening and day classes in chemistry and physics.

+ **WOOLWICH POLYTECHNIC.** Lower Market Street, Woolwich.—Classes in chemistry and botany; fees, 7s. 6d. to 12s. 6d.

MANCHESTER.—*University.*—Degree courses in science; fees, 20l. to 35l. per session. The *School of Technology* also provides specialised instruction in applied chemistry.

NEWCASTLE-UPON-TYNE.—*Armstrong College.*—Fees for curriculum of B.Sc. Durham in pure science, 60l.

NORWICH.—*Technical Institute.*—Evening classes in chemistry and physics; fees 3s. 6d. to 15s. per session. Classes in practical chemistry and practical physics are held on two mornings per week.

NOTTINGHAM.—*University College.*—London University B.Sc. day course in chemistry; composition-fee, 6l. per term. Evening classes in chemistry, physics, botany; sessional fees, 7s. 6d. to 10s. per week to 10s. per course.

PLIMOUTH.—*Municipal Science, Art, and Technical Schools.*—Day courses in science subjects cost 1l. to 5l. 5s. per subject, or degree course 12l. 12s. to 15l. 15s. per session. Evening classes 5s. to 10s. each, or course of study 10s.

PORTSMOUTH.—*Municipal College.*—Instruction in science subjects (including chemistry, physics, and botany) costs from 3s. 6d. to 15s. per course at evening classes and 5l. 5s. to 10l. 10s. per session at day classes.

READING.—*University College.*—B.Sc. course for London University examination, 24l. per session. Evening classes in chemistry and botany, fees from 7s. 6d. to 11.

ROCHDALE.—*Municipal Technical School.*—The fees for chemistry and botany (evening classes) are 6s. per subject, practical work included.

ST. ANDREWS.—*United College.*—Class fees in University degree course from 1l. 11s. 6d. to 4l. 4s. per subject during the summer session and 3l. 3s. to 4l. 4s. in the winter session. All graduating students pay an inclusive fee, which covers a stated number of courses.

SALFORD.—*Royal Technical Institute.*—Two years' day course, for which a diploma, endorsed by the Board of Education, is awarded. Fees, 5l. 5s. to 6l. 6s. Evening courses in chemistry and physics, qualifying for "course" certificate. Fees, 7s. 6d. to 11. 5s.

SHEFFIELD.—*University.*—Degree courses in science. Sessional lecture fees, 1l. 11s. 6d. to 4l. 4s. per course; laboratory fees, 2l. 12s. 6d. to 16l. 16s. per session. Evening classes in botany, chemistry, and physics, fee 10s. 6d. per course for each subject, and practical work 1l. 10s. *Central Secondary Evening School.*—Classes in chemistry and botany; fees, 4s. to 5s. per subject.

SOUTHAMPTON.—*Hartley University College.*—B.Sc. course; composition-fee, 24l. per session. Evening science classes at low fees.

SWANSEA.—*Technical College.*—Evening classes in chemistry, physics, and botany; fee, covering all subjects, 10s. per session. Day courses are held for degrees in science.

Optical Diplomas.

There is in this country no legal qualification required in order to practise as an optician, but it is desirable that those pharmacists who wish to take up this profitable side-line should possess the diploma of one or other of the examining bodies as evidence of training and of their skill and competency to undertake the work of sight-testing and spectacle-fitting. The sale of spectacles by chemists has long been recognised as a suitable adjunct to the business of a pharmacist, but it is only within comparatively recent years that the optical business has been placed on a proper scientific basis. This is largely due to the examinations in optics instituted towards the end of last century by the Spectacle-makers' Company and the British Optical Association. These examinations which have now developed into very complete tests of knowledge in ophthalmic optics, have always been well supported by pharmacists, who frequently follow up the Minor examination by taking a diploma in optics. Great as has been the progress of optical work in this country, it is possible that as a result of the war further developments will take place with a view to making the nation independent in future of Germany and Austria. Government intervention will doubtless take place in the optics industry as it has done in chemical industry, and this will mean much more activity in optical matters, including the section dealing with spectacles. We may also direct attention to the advantages to chemists who are interested in optics of becoming connected with the Society of Chemist Opticians, which was founded in the interests of chemists carrying on an optical business. Membership carries with it a weekly journal ("The Optician") and certain concessions in the way of fees charged by optic tapers. The Hon. Secretary is Mr. J. Harcombe Cut 25 Friern Barnet Road, London, N.

DIPLOMA SCHEMES.

Of the two schemes now in operation the best known is that of the Spectacle-makers' Company, 9 to 11 Temple House, Temple Avenue, London, E.C.—The diploma scheme of the Company was founded in 1898, and h-

been revised at intervals on progressive lines. There are now over 1,000 holders of the Company's diploma, and a good proportion of these are chemists.

There are two divisions of the examinations for the diploma in visual optics and sight-testing :

(1) The Preliminary division, consisting of (a) optical bench work, (b) a *viva-voce* examination in general and practical optics, (c) a written examination in optical calculations and practical optics, and (d) a practical examination in the optical analysis of lenses.

(2) The Final, consisting of (e) practical examination in frame adjustments and measurements, optical prescriptions, and lens-setting, (f) *viva-voce* examinations in visual optics, (g) written examination in visual optics, and (h) practical examination in the adaptation of lenses to correct errors of vision.

Candidates over the age of forty years, who have spent ten years in the optical industry, are exempt from section (c) of the Preliminary division. The examinations are held in London early in May and November of each year. The next examination will be held at St. Bride Institute, Ludgate Circus, E.C., in the first week of November. Entries must be received three weeks before the date of the examination. The Company also holds examinations in Glasgow when the number of candidates choosing that centre is sufficient.

The list of books recommended for students is given in the syllabus. The fees are 3*l.* 5*s.* for each of the two divisions of the examination, and in addition there are Government, registration-fees, etc., amounting to 4*l.* 4*s.*, payable when the diploma is issued. Those who take up the freedom of the City of London, which they are entitled to claim when they have become freemen of the Spectacle-makers' Company, can do so on payment of one guinea on their being accepted by the Corporation. There is an annual payment of 4*s.* to the Company for "quarterage." The full prospectus, with application form, can be obtained from the Clerk of the Company, Colonel T. Davies Sewell, F.R.A.S., 9 to 11 Temple House, Temple Avenue, London, E.C.

The British Optical Association (Incorporated 1895). Secretary, Mr. J. H. Sutcliffe, F.B.O.A., Clifford's Inn, London, E.C.—The Association's examination scheme, which has undergone considerable modification of late years, consists of two grades of examination. Membership (Intermediate certificate) and Fellowship, and these are held in London twice yearly (May and November), or in the provincial centres when a sufficient number of candidates desire it (see *C. & D.*, July 31 p. 128). The examination for the Intermediate consists of three sections, two being practical and the third theoretical. The theoretical part can be taken separately and in advance of the practical work, although no certificate is given until the practical examination is passed. The subjects in which the candidate is examined are lenses, frames, subjective sight-testing, dissection, physical optics, physiological optics, anatomy and physiology of the eye, phorometry, and ethics.

For the Fellowship examination candidates must hold the Intermediate or dioptric certificate, and are examined in similar subjects as before, but a deeper knowledge is required, and prisms, ophthalmoscopy, embryology, and microscopical demonstrations are included. The examination-fees are : Intermediate certificate, 5*l.* 5*s.*; Final (Fellowship grade), 5*l.* 5*s.*

Optical Instruction.

The following are the principal schools where instruction can be obtained in optics and in preparation for the examinations of the bodies mentioned :

THE BRITISH OPTICAL INSTITUTE, LTD., Fern Lodge, 20a Grove Road, Brixton, London, S.W., offers every facility for the instruction of those wishing to prepare for the examinations of the British Optical Association and the Spectacle-makers' Company. The necessary tuition is obtainable at day and evening classes or by a system of postal correspondence. The Institute is well equipped for the special teaching of practical sight-testing in the clinic classes under the guidance of well-trained instructors. Good examination results are shown. Two scholarships are awarded each term to students gaining the highest marks at their examinations. Vacation classes, with individual attention, not necessarily for examination purposes, are held during the months of August and September. It is proposed to hold a fortnight's course of evening classes in Glasgow early in September in preparation for the Fellowship examination of the British Optical Association. The Principal is Dr. Max Coque, B.Sc., and Mr. Harry Firth, F.B.O.A., F.S.M.C., is his chief assistant.

THE COLLEGE OF OPTICS, Glasgow and Edinburgh, conducted by Mr. T. S. Baird, F.R.M.S., etc., affords instruction for those preparing for the diplomas of the two recognised examining bodies who periodically hold examinations in Glasgow. New classrooms have recently been opened in Glasgow at 12 Renfield Street. There are day and correspondence classes which cover all the subjects; the winter session commences in September. Particulars of the classes can be obtained from Mr. T. S. Baird at the above address. During the war a deduction of 20 per cent. is allowed on all students' fees.

GLASGOW SCHOOL OF OPTICS, 180 West Regent Street, Glasgow. Principal; Mr. M. M. Irvine, D.B.O.A.; assistant, Mr. James Pinloch, M.A.—Classes are held on Wednesday and Friday evenings in visual optics, sight-testing, optical bench work, and frame-fitting. The course commences on the last Friday of September, and is suitable for students preparing for the diplomas of the British Optical Association and the Spectacle-makers' Company. Certificates are awarded to students who complete the course.

MR. A. E. GREY, 13 and 14 Spencer Street, Clerkenwell, London, E.C., receives pupils for personal instruction, practical work, and sight-testing by objective and subjective methods.

MR. LIONEL LAURANCE, Institute of Optics, Temple House, Temple Avenue, London, E.C., conducts, in association with Mr. H. Oscar Wood, courses of instruction in preparation for the examinations of the Spectacle-makers' Company. The tuition is both in class and by correspondence. The fees for the Preliminary division of the examination are 4*l.* 4*s.*, and for the Final division in sight-testing 4*l.* 4*s.* Mr. Laurance is Official Instructor to the Spectacle-makers' Company, and is the author of the text-books for the Company's examinations—"General and Practical Optics" and "Visual Optics and Sight-testing."

THE NORTHAMPTON POLYTECHNIC INSTITUTE, Clerkenwell, London, E.C.—The courses in optics are held in the British Horological Institute in Northampton Square. The full course of technical optics for opticians occupies two years, and consists of lectures, laboratory work, drawing-office work, tutorial classes, and workshop practice. A diploma in technical optics is awarded on the completion of a two-years' course with satisfactory records in examination and class-work. Evening students also receive certificates of attendance and satisfactory progress. The winter term begins late in September. The fees for the full-time day course are 15*l.* per session (September to July). Partial courses (two afternoons a week) may also be taken, for which the fee is 3*l.* per session, and there are afternoon classes suitable for chemists in business who cannot leave during the whole day. The entire field of optics is covered both theoretically and practically, and students can specialise either in opticians' work or in optical-instrument making. The prospectus of the optical department can be had by applying to Dr. R. Mullinex Walmsley, the Principal.

MR. J. G. WALLBRIDGE, F.S.M.C., School of Optics, 227 Kensington, Liverpool, conducts optical classes, chiefly through the post. He also makes a point of his willingness to attend at chemists' places of business, or to instruct those within easy reach of Liverpool who can arrange periodical visits for practical work.

The Woman in Pharmacy.



II. POISONING A CAT.

Trade-Marks.

Objections to the registration of any of the undermentioned applications must be stated on Form T.M. No. 7 (obtainable at Money Order Offices for £1) and lodged with the Registrar of Trade-Marks, Patents Office, 25 Southampton Buildings, Chancery Lane, London, W.C. The prescribed time is one month from the date of the Journal in which the application has appeared; but the period may be enlarged by the Registrar, if he thinks fit, and upon such terms as he may direct. Formal opposition should not be lodged until after notice has been given by letter to the applicant for registration, so as to afford him an opportunity of withdrawing his mark before the expense of preparing the notice of opposition is incurred. Failing such notice to the applicant, an opponent may not obtain an order for costs.

The figures in parentheses refer to the classes in which the marks are grouped, for a list of which, with particulars as to registration, see "The Chemist and Druggist Diary," 1915, p. 435.

(From the "Trade-marks Journal," July 21, 1915.)

"SILUMINITE"; for electrical insulating material (50). By W. E. W. Richards, 133-136 High Holborn, W.C. 367,424.

"COMPUM"; for artificial or composite pumice-stone (50). By O'Hara & Hoar, 12 Lime Street, E.C. 367,710.

"BULL DOG," with picture of same; for prepared pumice blocks (50). By H. B. Atkins, 3 Cliff Terrace, St. John's, S.E. 368,050.

(From the "Trade-marks Journal," July 28, 1915.)

"UCAL"; for goods (1, 2, 4, 11, 40, 42). "UGAL" and "CHELTA"; for mineral waters, etc. (44). By United Chemists' Association, Ltd., Priory Court, London Road, Cheltenham. 362,432/433/434 435 431 430 439. (Associated) 367,687.

"HEMOSIN"; for chemicals (2). By The Molassine Co., Ltd., Tunnel Avenue, East Greenwich. 368,088.

"KNOC" on oblong label; for a medicinal powder (3). By Julia Wilson, 4 Seafield Terrace, Copnor Road, Copnor, Portsmouth. 366,456.

"PITONES"; for a medicinal tablet (3). By Haywards, 35 Leicester Square, Walsall. 367,875.

"TIK-IT"; for medicinal tablets (3). By W. T. Warhurst, Ltd., 1 Gonner Street, Bootle. 367,833.

"BYNOGEN"; for medicinal chemicals (3), and for food-substances (42). By Allen & Hanburys, Ltd., Plough Court, 37 Lombard Street, E.C. 367,897 8. (Associated.)

"HELVIA"; for medicinal chemicals (3). By Leslie's, Ltd., 18 Eldon Street, E.C. 368,101.

Facsimile signature "Albert Bromley"; for medicinal chemicals (3). By A. Bromley, 207 Manchester Road, Denton, Lancs. 368,146.

"NERVOSAN"; for medicinal chemicals (3). By Casein, Ltd., Shepcote Lane, Battersea, S.W. 368,166.

"ETELIA" over letters "B & C"; for medicated toilet preparations (3). By Bontems & Cooper, 1 Golden Square, W. 368,167.

"KEMNOS"; for medicinal chemicals (3). By Ashton & Parsons, Ltd., La Belle Sauvage, Ludgate Hill, E.C. 368,179.

Floral device surrounding words "TUDOR CHOCOLATES MADE BY CADBURY"; for chocolates (42). By Cadbury Bros., Ltd., Bournville, Birmingham. 355,395. (Associated.)

"ROSETA"; for a non-alcoholic flavouring (42). By Cooke, Tweedale & Lindsay, Ltd., 41 Corporation Street, Manchester. 367,503.

Device, including portrait of W. Coleman and words "COLEMAN'S TOXIC COCOA CUBES" ("W. Coleman" and "Coleman's" disclaimed); for cocoa, milk, and sugar cubes (42). By Coleman's Tonic Cocoa Co., 1 Palace Plain, Norwich. 366,888. (Associated.)

"SOLAC"; for a milk substitute (42). By Solac, Ltd., 221 Tottenham Court Road, W. 367,761. (Associated.)

Device, including milkmaid, medals, and words "MILKMAID BRAND CAFÉ AU LAIT," etc.; for a preparation of coffee, milk and sugar. By Nestlé & Anglo-Swiss Condensed Milk Co., 6 and 8 Eastcheap, E.C. 367,571. (Associated.)

"BRITONARIS"; for an aerated beverage (44). By J. Lovibond & Sons, Ltd., Greenwich Road, S.E. 368,005.

"ODONOL"; for a dentifrice (48). By The English Drug and Chemical Works, Ltd., 8 and 9 Broad Street Avenue, E.C. 366,573.



Memoranda for Correspondents.

Communications should be accompanied by the names and addresses of the writers, otherwise they cannot be dealt with.

Queries by subscribers on dispensing, legal, and miscellaneous subjects connected with the business are replied to in these columns if they are considered to be of general interest.

Correspondents are requested to write each query on a separate piece of paper. Every endeavour is made to reply to queries without delay, but insertion of the replies in "the next issue" cannot be guaranteed, nor, as a rule, can they be sent by post.

Letters submitted for publication (if suitable) should be written on one side of the paper only. Their publication in "The Chemist and Druggist" does not imply Editorial agreement with the opinions expressed, even when the writers use a "nom de plume."

Complete and systematic indexes of the "C. & D." are presented with the last issues in June and December each year. Every subject dealt with week by week is included, and correspondents are advised to refer to these and the "C. & D. Diary" before asking the Editor for information, so as to save time.

Dispensing for Dependents.

SIR.—The "Observations and Reflections" of "Xrayser II." in your current issue are full of meat, especially those regarding "The Lady Pharmacist" and "Free Dispensing of Medicines." I guess he has had a wide experience of the opposite sex in business, and his experiences coincide with my own almost in every respect; and, as I do not care to share "the storm" he expects to burst from his remarks, I am content to leave such a delicate and controversial subject, at the moment, to him. Ancient free dispensing of medicines, his comments are opportune. When the scheme was inaugurated it was a good and diplomatic move on the part of the Pharmaceutical Society. This move has probably done its work, and no doubt has benefited pharmacy as a whole. But pharmacists should not continue to be penalised for work which in the majority of cases can be paid for by the dependents. The time taken up in this dispensing is the all-important item in the matter in these days of inadequate supply and incompetent, however willing, assistants available: the result being that pharmacists in business, in many cases, have to do the work themselves, adding to their already overburdened responsibilities, not to mention financial liabilities. I hope, therefore, with "Xrayser II." that the Pharmaceutical Society will be able to evolve an arrangement on a more satisfactory basis, or bring the whole scheme to an end.—Yours faithfully,

J. Y. FURWEATHER.

An Aberdeen subscriber (19124) writes: "The plan taken here by the Soldiers' and Sailors' Association regarding Medical Benefit is that those who are as well or better off than formerly get no benefit, while those who are worse off (financially) get medical attendance and drugs. This has, in my experience, stopped the abuse almost entirely."

Cattle-poison.

SIR.—Being interested in botanical subjects, I was struck with your reply to "Ph.C." (156 25) in your issue of July 31. Is the ground ivy referred to *Nepeta Glechoma*, or the real ivy growing on the ground, *Hedera Helix*, as I find in this neighbourhood the latter is often spoken of as ground ivy? I have never heard of either possessing poisonous properties. Did you ever hear of very young seedlings of the ordinary sycamore being deleterious? I am led to ask this question, as I was asked lately by a farmer to view his fields on the chance of finding a poisonous plant or plants that might be the cause of an epidemic among his lambs, which occurs every spring; but there were none to be found, and nothing out of the ordinary, except a vast quantity of sycamore-seedlings springing up among the grass. The animals affected were newly-born lambs, which died after sucking the ewes; and the strongest seeming of the lambs were most affected. If the ewes had lambed a day or two before putting into these fields, the lambs escaped death, but if born a day or two after, in nearly every instance they died. The poison, or whatever it was, seemed to act on the ewes' milk. I can think of no other cause but the seedlings. The lambs are not affected on any other part of the farm, but if ever the ewes are changed into these particular fields this epidemic takes them. Can you suggest a cause?

Yours truly,

W. WISE.

Subscribers' Symposium.

For interchange of opinion among "C. & D." readers, and brief notes on business and practical topics, especially new ideas.

Capsule-making Houses.

John Durant, Ltd., Murray Road, Bedminster, Bristol, referring to recent notes on the establishment of capsule-making houses (*C. & D.*, August 7, p. 54), state that the business of John Durant was established in 1842.

Shortage of Assistants.

Memo (193/73) writes regarding the shortage of assistants, which he attributes to long hours and low pay. "In my opinion," he adds, "the solution of these and other troubles of the drug-trade is for us to be directly under State control, and the fines increased for illegal selling of poisons, etc."

Reform of the P.A.T.A.

Jay Mack (193/58) points out that in the last line on the first column of his letter last week (p. 61) the word "substitutes" was made to read "subscription," thus obscuring the meaning of the sentence. He adds further: "The public demand for patents represents 50 per cent. of the ordinary retailer's turnover. The proportion is not quite this in my business, but if I could get patents direct it would soon reach that figure."

To Wholesale Houses.

A begging-letter writer—not a registered pharmacist—is "working" the wholesale houses assiduously, and apparently with great success. We suggest that in this case the routine treatment which such communications appear to receive in some instances should be modified, and that inquiries should be instituted before money is sent. From a subscription-list which we have seen it is made to appear that some wholesalers are now sending "second" donations.

Moore's Agency

Mr. John Macdonald Moore, D.Sc., proprietor of Moore's Agency, Calcutta and Bombay, writing from Bournemouth in reference to the police investigation of the Agency's trading, adds "that the result of the police investigation was concluded by the Commissioner of Police sending a letter to the effect that everything was quite in order and absolutely above suspicion. May I further say that at no time since the outbreak of the war have any goods been received by my Agency from Germany or any other hostile country?"

Worn to the Bone.

This is, literally, the condition of a tooth-brush which we have received from *Mr. J. A. Symonds*, chemist, Ipswich. He regards it as an excellent testimonial to the quality of the brushes, as all the bristles still remain firmly fixed. The customer, who comes from a distance to buy tooth-brushes from Mr. Symonds' pharmacy, declares she can get nothing like them in the town where she at present resides. Mr. Symonds lets us into the secret of quality: "I have bought my tooth-brushes from Maw's ever since I started business twenty-two years ago."

The Summer Number.

"Your Summer Number is capital. I am having the group of pharmacy-pots on the cover framed: it is the finest thing you have produced."—*C. S.* (191/93).

"Your splendid Summer Number was read with great interest by more than one brother pill," writes a subscriber (191/53), who is dispenser at a hospital "somewhere in France."

"The wide range of subjects with their interesting and successful treatment place the Summer Number second to none of the many special numbers that have preceded it. The National Insurance reports, which are a red rag to some of us, I am thankful to say, are quite dwarfed by the richness of the many other communications."—*J. N.* (193/25).

"Scottish pharmacists wore a smile during the week-end. The *C. & D.* Summer Number was to hand, and provided a rare and instructive treat. This issue is *par excellence*, but there is evidently no end to what can be produced by the good old *C. & D.* It is the favourite with master and men. One knight of the pestle remarked, 'The *C. & D.* makes fine week-end reading, but the Summer Issue provides a year's end.'"—*Fife* (153/39).

"Congratulations on your wonderful Summer Number. The artistic note is an inspiration, and the maintaining of so high a standard throughout is remarkable, considering present-day exigencies and the fact that *THE CHEMIST AND DRUGGIST* is not produced with the leisureliness of a monthly magazine and the deliberation of a 'Review.' It is consol-

ing to reflect, without egotism, certainly without flattery, but absolutely without question or qualification, that we have in *THE CHEMIST AND DRUGGIST* a national asset which surpasses far and away anything in its line published now or hitherto anywhere in the world."—*W. M.* (91/19).

Legal Queries.

The majority of difficulties in regard to trade law are explained in the legal section of "The Chemist and Druggist Diary," 1915, beginning on page 405.

J. W. (187/19).—PRODUCING POISON-BOOK.—Chemists are not compelled by law to produce their poison-book to the police or any other person. After impressing this on an officious police-sergeant and obtaining an acknowledgment that he has exceeded his duties, there is no reason why you should not offer to assist him, if the investigation would further the ends of justice.

C. F. L. (192/54).—ROYAL ARMS ON SPECIE-JARS.—It does not necessarily follow that the display of the Royal Arms on a specie-jar is a contravention of Section 68 of the Trade-marks Act, 1905. (See *C. & D. Diary*, 1915, p. 428.) Mr. Justice Parker has pointed out that "it must be proved that the arms are being used under circumstances which will lead the public to believe that the users are doing so with the authority of the King." Unfortunately, the cost of defending the legal action which the Royal Warrant Holders' Association threatens is too great for most chemists, and up till now the Association have been able, in consequence, successfully to coerce those chemists who have been the object of their unwelcome attention.

Southend (190/8) and *W. J.* (191/74).—INSURANCE AGAINST AIR-RAIDS.—The two correspondents hold their premises on repairing leases. Would they be liable to make good damage done by enemy aircraft or bombardment? In one case the landlord has called upon our correspondent to insure the premises against these risks in a particular insurance-office, and he wishes to know if he is bound to comply with this demand. [The covenants in an ordinary repairing lease extend to damage from the causes specified, and our correspondents will be well advised to cover themselves against the liability by insurance. Needless to say, a landlord cannot compel his tenant to insure in a particular office, or at all, unless there is an agreement to do so, which is very improbable, assuming that the lease was entered into before the war.]

Calox (191/35).—TERMS OF AGREEMENT FOR HIRE OF HOUSE.—"Calox" holds his house under an agreement, which provides that "the tenant agrees to take the house for the term of one year certain from September 29, 1914, and thenceforth, at the option of the landlord, only as a monthly or a quarterly tenant. . . . And the tenant shall be at liberty to determine the said tenancy after September 29, 1914, by giving to the landlord a three calendar months' notice to determine the said tenancy on any quarter-day, but the tenant shall not give a notice to determine the said tenancy on December 25 in any year." Is "Calox" entitled to leave on September 29 next without notice, and, if not, what is the earliest date upon which he may terminate the tenancy, and when must he give notice? [In our opinion, "Calox" will not be released on September 29, but by giving notice on or before December 25 next he may terminate the tenancy on March 25, 1916.]

Subscriber (191/16).—SALE OF A HOUSE.—Our correspondent, who lives in the country, about two months ago sold a house in London. As he did not receive the purchase-money, he wrote to his solicitor for an explanation, and was informed that the solicitor has been an officer in the Army for some months, and that the managing clerk, whom the solicitor left in charge of his business, has received the purchase-money and absconded with it. The clerk has since been arrested and sentenced. The solicitor states that he is unable to pay the amount. Is "Subscriber" in a position to recover it by legal proceedings, and, if so, can he put this matter in the hands of a "trade-protection" office, so as to save a journey to London? [If "Subscriber" authorised the managing clerk to receive the money, he has no claim except against the clerk; but otherwise apparently he may either take proceedings against the solicitor or against the purchaser of the property, who ought not to have paid the purchase-money to the managing clerk. He probably has a lien upon the property as against the purchaser or the purchaser's mortgagee, if any. "Subscriber" must choose which defendant he had better proceed against, but he must bring the action through a solicitor, as he cannot hope to carry out the necessary formalities personally. A "debt-collecting agency" is not qualified to act in a case such as the present.]

Miscellaneous Inquiries.

We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas of them. When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for and how.

We do not as a rule repeat information which has been given in this section during the past twelve months, but give the reference to the issues in which the information may be found. If querists cannot refer to these they may obtain the numbers from the "C. & D." Office at the published price, usually 6d.

J. T. R. (167 33).—FLOOR-SWEEPING COMPOUND.—See C. & D., August 9, 1913, p. 64.

E. D. (181 30).—(1) BALSAM OF SULPHUR.—See C. & D., July 25, 1914, p. 144. (2) SHAMPOO-POWDER.—Saponin is not considered a suitable basis for shampoo-powders on account of its small bulk and high price. You would require to make a few experiments before arriving at the proper proportion of saponin to employ.

B. D. Co. (179 39).—SHAVING-POWDER.—A good deal depends on the kind of soap you employ. A smoother lather is obtained if 5 per cent. of powdered starch is added in place of the spermaceti in the formula you send.

Leaves (191 19).—DRYING HERBS.—Leaves of medicinal plants are cut when the plants are in full flower, and are at once taken in and placed in a drying-closet before fermentation sets in. Another method said to be employed is to dry the leaves between porous paper in the way employed in drying botanical specimens. Further particulars of the processes are given in the treatise on the Cultivation of Medicinal Plants which was published in the C. & D. Diary, 1908, p. 230.

S. M. (26 7).—MANUFACTURE OF EXPLOSIVES.—The standard work on this subject is Guttman's "Manufacture of Explosives," 2 vols. (Whittaker, 2*l.* 2*s.*); a smaller work, dealing with the classification of explosives, is Wisser's "Explosive Materials" (Spon, 2*s.*). The subject is also dealt with concisely in Thorpe's "Dictionary of Applied Chemistry." You will have noticed the short report C. & D., July 24, p. 35, on the third of the series of lectures by Professor Vivian B. Lewes, before the Royal Society of Arts, on "Modern Munitions of War." These lectures have since been published in full in the "Journal of the Royal Society of Arts" for August 6, a copy of which (6*l.*) can be had from the Secretary, John Street, Adelphi, London, W.C.

W. S. (187 52).—PERFUME FOR ALKALINE SHAMPOO-LIQUID.—We have found that terpineol and coumarin (½ oz. of the former and ½ dr. of the latter to a gallon of liquid) remain unchanged in odour in alkaline liquids. A little synthetic neroli may also be added.

W. N. (176 74).—WATER-SOFTENING.—The following are books dealing with the softening of water for use in boilers: Christie's "Boiler-waters: Scale, Corrosion, and Fouling" (Spon, 12s. 6*d.*); Collet's "Water Softening and Purification" (Spon, 5*s.*). The subject is also generally dealt with in books on water-supply, and in Thorpe's "Dictionary of Applied Chemistry" there is a concise description of the causes and methods of removing hardness from water destined for industrial purposes. The well-known Clarke's process uses lime, and this has been modified into the Archibald-Deeley process, which applies the method to water used for industrial purposes. A recent process is that in which permanganate is employed (see C. & D. Supp., May 8). Some prefer to add substances to the water in the boiler, the chief chemicals used being barium hydroxide, sodium aluminate, tri-potassium sodium phosphate, and soda-ash, these being often combined with tanning-material or mucilaginous matter.

R. J. S. (164 18).—(1) HOUSEHOLD AMMONIA.—The type of household ammonia which you require is represented by the following recipe:

Potassium carbonate	... 5 <i>s.</i>
Soft soap	... gr. xv.
Strong solution of ammonia	... 3 <i>v.</i>
Distilled water	... 3 <i>xv.</i>

(2) LIME SOLUTIONS soon clear if allowed to stand for a day or two. It is best not to filter such solutions, as the exposure to air which this involves is deleterious.

G. Q. (Switzerland) (184 71).—Professor Maxwell-Lefroy's pamphlet, "House-fly Campaign," is published at 2*l.* post free, by the Zoological Society, Regent's Park, London, N.W.

J. P. C. (191/91).—MANUFACTURE OF GLYCEROPHOSPHATES.—The following is a simple method of preparing glycerophosphates which was devised some time ago by a French chemist: One part by weight of phosphoric acid, sp. gr. 1.454, is mixed in a flask with 1½ part of glycerin, sp. gr. 1.212. The flask is furnished with a double-bored cork provided with a thermometer and an exit tube. It is then gradually heated in the ordinary way over a Bunsen flame. At 120° the liquid assumes a straw colour, and as the temperature slowly rises it gradually darkens until 190° is reached, when the colour is that of dark beer, and vapours of acrolein are given off. The heat is removed and the vessel allowed to cool, a viscous mass resulting. With 100 grams of phosphoric acid and 150 grams of glycerin it requires about forty minutes to complete the reaction. To obtain calcium glycerophosphate, the resulting liquid is poured, in small quantities at a time, into an excess of a mixture of 50 grams of lime in 250 grams of water. The mixture is stirred, and, when effervescence ceases, allowed to stand for six hours and then filtered. To the faintly yellow clear filtrate half its volume of 90-per-cent. alcohol is added, which throws down a flocculent precipitate of calcium glycerophosphate. This is collected, washed with alcohol of the same strength, redissolved in water, reprecipitated with alcohol, and dried at as low a temperature as possible in a desiccator. From the mother-liquor another salt having the composition of an acid glycerophosphate is obtained—it is not precipitated by alcohol.

C. E. D. (169 40).—VARNISH FOR OIL-PAINTINGS.—For this purpose a good copal varnish is needed. There are several recipes in "Pharmaceutical Formulas," but the following paragraphs embody the details of the preparation of such varnishes: From a parcel of scraped African gum copal, before it is broken, pick out the fine transparent pieces which appear round and pale, like crystals: dry them in the sun or by the gentle heat of a fire. Afterwards reduce to a coarse powder, and mix 3 lb. of this powdered copal with 2 lb. of well-washed and dry glass-powder. The mixture is then put into the gum-pot, and the gum fused, keeping the mass well stirred. When the gum is fused run in 6 pints of hot linseed oil and boil until it strings freely. Remove from the fire, and add 10 pints of old turpentine; mix, and strain. Keep the varnish in a glass bottle exposed to light and air, so as to "age" it.

C. (191 96).—SODIUM-SALICYLATE SOLUTION.—The following is the recipe required:

Salicylic-acid crystals	... 437 gr.
Sodium bicarbonate	... 270 gr.
Water	... 4 oz.

Mix, and when effervescence ceases, filter, neutralise it if not already so, and add distilled water through the filter to make the filtrate measure 6 oz. The solution contains 10 grains of sodium salicylate in each drachm.

Retrospect of Fifty Years Ago.

Reprinted from "The Chemist and Druggist," August 15, 1865.

Chemistry in the Witness-box.

The evidence adduced in the case of Jones v. Fay, if reported correctly in the columns of "The Times," proves that the "chemistry of common life" is little studied by certain members of the learned professions. Dr. Forshaw, a consulting surgeon, described King's yellow as "oxide of arsenic" and vermillion as "red oxide of mercury." Being cross-examined, he said, "I believe King's yellow is an oxide of arsenic; but I won't adhere to a positive statement that it is so." Mr. Sergeant Ballantine, in his address to the jury, made an attempt to amend the witness's chemistry with respect to vermillion, but did not venture to explain the constitution of King's yellow. Vermilion, according to the learned sergeant, contained little mercury; it was not an oxide, but a "sulphate." Any chemist's apprentice could have informed the jury that King's yellow is an impure trisulphide of arsenic (As_2S_3), and that vermillion is a sulphide of mercury (HgS), containing about 86 per cent. by weight of mercury. Another strange mistake appears to have been made by Dr. Hellsham, the Registrar of the Medical Council, in describing calomel as the "bichloride of mercury." If we follow the "British Pharmacopoeia," and take 109 as the atomic weight of mercury, calomel will be the subchloride (Hg_2Cl), and if we follow those chemists who double this atomic weight, it will then be the protochloride ($HgCl$). No accepted view of the constitution of calomel accords with the name of "bichloride of mercury."

SODA-WATER MACHINERY.

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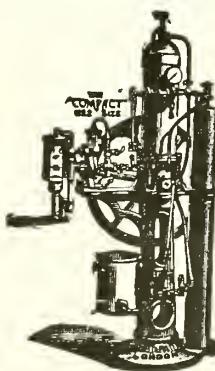
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ARE READY FOR USE IMMEDIATELY!

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There's a feeling of satisfaction

in selling a Toilet Lanoline that's made from a fine quality Adeps Lanæ—one that does not separate and is of the proper colour, consistence, and delightfully perfumed; especially so now when many chemists are at a loss to know where to get such a line. To these we respectfully suggest ordering a *trial dozen*, either per 'phone (City 4278 or 4279) or postcard, of

CHRISTY'S TOILET LANOLINE

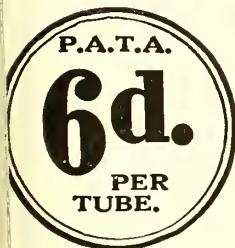
In No. 9 (4 by 1) Pure Tin Tubes, in the
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They will find this filling their desires completely, and know that in addition to the protection vouchsafed their reputation for *quality*, their profit is adequately protected by a minimum P.A.T.A. figure.

Also in Nos. 7 and 10 Tubes
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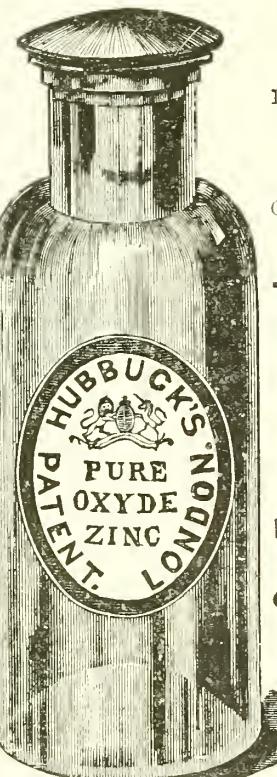
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Hodgkinson, Prestons & King.
Hudsons, Clarke & Ward.
Horner & Sons.
Huskisson, H. O., & Co.
Inman's Stores (of Edinboro').
Ismay, John, & Sons
Lofthouse & Saltmer (Lim.)
Oldfield, Pattinson & Co.
Pinkerton, Gibson & Co.
Raines, Clark & Co.
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Rankin & Borland.
Siversides, R. B. G.
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The New Remedy in Amœbic Disease.—Vide *British Medical Journal*, Aug. 24, 1912, pp. 405-408.

Emetine for Hæmoptysis. Vide *Press Médicale*, Paris, September 24.—"The result is surprising, haemorrhage from the lung ceasing at once."—Prof. C. FLANDIN.

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Ginger, English Ground, 1 cwt. @ 46/- cwt.; 7 lbs. @ 7d. lb.

Gingerine, Extra, 5 lbs. @ 13/- lb.; 1 lb. @ 13½ lb.

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• Acid. Carbolic, P.B., 6 lbs. @ 1/8 lb.

• Acid. Tannic, P.B., 6 lbs. @ 2/3 lb.

• Belladon. B.P.C., 6 lbs. @ 3/3 lb.; 1 lb. @ 3/9 lb.

• Glycerin. Boracis, P.B., 6 lbs. @ 1/4 lb.

• Pepsin. Acid, P.B., 1 lb. @ 3/8 lb.

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Gum Guaiacil, 1 cwt. @ 1/3 lb.; 28 lbs. @ 1/5 lb.

Gum Juniper, 14 lbs. @ 1/- lb.

Gum Thus Elect., 2½ cwt. @ 34/- cwt.; 28 lbs. @ 4/3 cwt.

Gum Tragac. Elect., English Ground, 7 lbs. @ 7/10 lb.; 1 lb. @ 8/3 lb.

Heading (Frothing Ess.), 5 lbs. @ 1/3 lb.; Heliotropine, 1 lb. @ 11/- lb.

Ellebore, White, Powder (Foreign Ground), 1 cwt. @ 45/- cwt.

examethylenetetramine, 7 lbs. @ 6/6 lb.; 1 lb. @ 6/10 lb.

oney, Palm Set, Jamaica, 3½ cwt. @ 37/- cwt.; 28 lbs. @ 50/- cwt.; Californian, ½ cwt. @ 57/- cwt.; 7 lbs. @ 8d. lb.

ydryargyrum, P.B., 10 lbs. @ 5/6 lb.; 1 lb. @ 6/- lb.; Ammon., 28 lbs. @ 1/11 lb.; c.

Creta, 28 lbs. @ 1/9 lb.; Iodid. Rub. 28 lbs. @ 13/9 lb.; Oxid. Rub., 28 lbs. @ 6/11 lb.

Perchlor., Lump, 28 lbs. @ 6/2 lb.; Subchlor., 28 lbs. @ 6/8 lb.; Sulph. c.

Sulph., 28 lbs. @ 6/3 lb.; 7-lb. quantities

1 lb. extra, 3-lb. quantities, 2d. lb. extra, 1-lb. quantities, 3d. lb. extra.

ydrokinone, 1 lb. @ 18/- lb.

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Buchu Conc., 1 to 7, 6 lbs. @ 2/5 lb.

Calumba Conc., 1 to 7, 6 lbs. @ 1/1 lb.

Caryoph. Conc., 1 to 7, 6 lbs. @ 1/2 lb.

Cascarilla Conc., 1 to 7, 6 lbs. @ 1/6 lb.

Cinchona Acid, 1 to 7, 6 lbs. @ 1/9 lb.

Gentiana Co., 1 to 7, 6 lbs. @ 1/3 lb.

Quassia Conc., 1 to 7, 6 lbs. @ 1/1d. lb.

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Isinglass, Brazil, fine cut, 7 lbs. @ 3/9 lb.; 1 lb. @ 4/- lb.; Russian finest, 7 lbs. @ 10/6 lb.; 1 lb. @ 11/- lb.; Ribbon or Sheet, 7 lbs. @ 2/9 lb.; 1 lb. @ 3/- lb.

Mist. Sennæ Comp., B.P., 20 lbs. @ 7½ lb.; 6 lbs. @ 8½ lb.

Morphinae Acet. Hydrochlor. or Sulph., Pulv. B.P., 25 oz. @ 14/- oz.; 16 oz. @ 14/3 oz.; 8 oz. @ 14/6 oz.; 1 oz. @ 15/3 oz.; Pur. Precip. Bimeconate or Tart., 1oz. @ 19/- oz.

Morphinae Diacet., 4 oz. @ 24/- oz.; 1 oz. @ 24/6 oz.; Hydrochlor. 6d. per oz. less.

Myrrh, Gum, English Ground, 28 lbs. @ 1/2 lb.; 7 lbs. @ 1/4 lb. |

Kamala, 7 lbs. @ 1/11 lb.; sifted, 3d. per lb. extra.

Lapis Punicus, fine powder, 2 cwt. @ 11/- cwt.; 7 lbs. @ 2d. lb.; lump, 2 cwt. @ 16/- cwt.; 7 lbs. @ 3d. lb.

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*Lin. Aconiti Meth., 5 lbs. @ 1/5 lb.; 1 lb. @ 1/8 lb.

* Bellad. Meth., 5 lbs. @ 4/11 lb.; 1 lb. @ 5/2 lb. | 1/1 lb.

Camph. P.B., 40 lbs. @ 1/- lb.; 9 lbs. @ 1 oz. | 1 oz. |

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* Rhei, p.s., 1-7, 6 lbs. @ 2/3 lb. | Santal. Cō, 1 lb. @ 4/- lb.

* Sennæ Dulc., 6 lbs. @ 1/5 lb. | Sennæ pro Syr., 1-7, 6 lbs. @ 2/2 lb.

* Strychninæ Hyd. P.B., 6 lbs. @ 1/8 lb. | Tolut. pro Syr., 1-7, 6 lbs. @ 1/9 lb. | Trinitrini, B.P., 1 lb. @ 6/3 lb.

Lithia Carb. P.B., 28 lbs. @ 6/4 lb.; 7 lbs. @ 6/6 lb.; 1 lb. @ 6/9 lb. | Citras, B.P., 28 lbs. @ 6/4 lb.; 7 lbs. @ 6/6 lb.; pulv., 3d. lb. extra.

Lycopodium, 7 lbs. @ 4/9 lb.

Mag. Calc. Levis, 1 lb. 1/- lb. | Mag. Calc. Pond., 7 lbs. @ 1/10 lb.; 1 lb. @ 2/- lb.

Mag. Carb. Pond., 7 lbs. @ 11d. lb. | Mag. Carb. Levis, 1 cwt. @ 41/-; 7 lbs. @ 5d. lb. | Mag. Crat. Gran., 28 lbs. @ 1/- lb.; 6 lbs. @ 1/1 lb. | Mag. Sulph., fine druggists', B.P., 56 lbs. @ 26/- cwt.

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Naphthalene Candles, 28 lbs. @ 36/6 cwt. | Nux Areca, 1 cwt. @ 75/- cwt.; 7 lbs. @ 9d. lb.; powder, English ground, @ 80/- cwt.; 7 lbs. @ 9½ d. lb.

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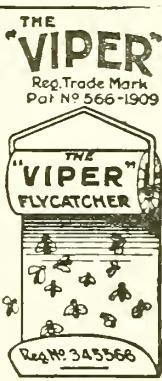
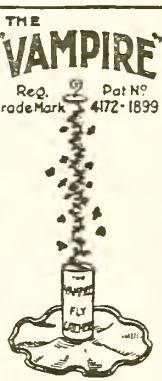
**Ethyl
Chloride**

DUNCAN

MANUFACTURED ONLY BY

**DUNCAN; FLOCKHART & CO.
EDINBURGH & LONDON.**

TRUE FLYCATCHERS!



The above Flycatchers are undoubtedly the best to stock; they are Neat, Clean, Well-sealed, and, above all, Catch well.

The "Vampire" is elegant and ingenious. The "Flysac" is particularly effective and The "Viper" in two widths, i.e. economical, 2 in., and 4 in., is a lot for the money.

A PROVED SUCCESS! NO EXPERIMENT!
"COME TO STICK!"

SOLE MAKERS— (4)
KAY BROTHERS, Ltd., STOCKPORT.

Telegrams: "KAY STOCKPORT." Nat. Tel.: 247.

THE DOOMO AIRSHIP FLY BAND
CUMMEDION BOTH SIDES
1st CLASS PATENTED
FLY CATCHER
2' INCH TAPE.

A wide band sticky on both sides, unrolling like a blind.

Proprietors of FLYODOOMO—the old Favourite Fly Paper.

Jno. H. Smith & Co.
NEWARK-ON-TRENT.

TANGLEFOOT SEALED STICKY FLY PAPER, ALABASTINE CO.

SIR JAMES CRICHTON-BROWNE,

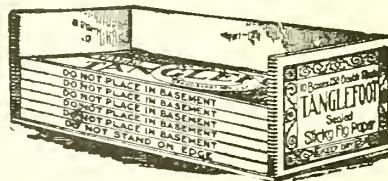
in his Presidential speech at the Annual Conference of the Sanitary Inspectors' Association on August 6th, said: "The Fly-plague in South Africa was markedly diminished wherever punctilious care in the prompt removal of all refuse from the vicinity of the camp was combined with a liberal use of



TANGLEFOOT FLY PAPER."

The Times, August 9, 1902.

ALSO OF
All Chemists' Sundriesmen.

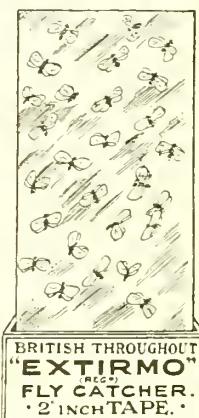


Parcel Post,
packed,
150 Sheets, 5/-

Per case of
500 Sheets, 15/-

NEW SIZE TANGLEFOOT, 10 1/2 per case of 400 Sheets.
TANGLEFOOT is specially adapted for hot Climates, and is sold throughout the world.

Before Buying
your
FLY CATCHERS
this Season, see the
"EXTIRMO"



Registered, and Patent applied for.
British-made throughout.
Embraces all the good qualities of other Catchers and eliminates the bad, adding improvements.

Advantages:

Contained in wooden boxes, wrapped in greaseproof paper.

The Catcher is weighted at the bottom which prevents it being blown about against curtains, &c.

The interior is obscured from view, and the fingers are not soiled when tape is pulled out.

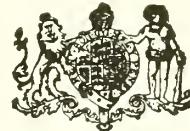
A drawing-pin is enclosed with each, so that Catcher can be hung from the ceiling, &c. &c.

Full particulars, prices, &c., from the sole Wholesale Agents for the "Extirmo" Fly Catchers.

SHIRLEY BROTHERS, Ltd., Whitecross Works, LONDON S.E.



By Royal Warrant

To H.M.
King George V.To H.M.
Queen Alexandra.

HOLDERS OF ROYAL WARRANTS DURING THREE SUCCESSIVE REIGNS.



Jeyes' Disinfectants

JEYES' FLUID,
JEYES' CYLLIN,
CYLLIN MEDICAL
CYLLIN MEDICAL CAPSULES (Palatinoids),

Jeysol

Identical in composition with original German
Lysol, and equally efficient.

Jeyes' Sanitary Compounds Co., Ltd., 64 Cannon Street, London, E.C.

Lysol **BRITISH**
MADE AND
OWNED.

Satisfy Your Customers' Demands
for the Right Article.

GENEROUS TERMS TO CHEMISTS.

Showcards, Literature and Samples Provided.

SEND FOR TERMS.

CHAS. ZIMMERMANN & CO. (CHEM.), LTD., 9-10 St. Mary-at-Hill, LONDON, E.C.



Lofthouse & Saltmer, Ltd.

Wholesale and Export Drug Merchants,
Manufacturing Chemists

HULL

Invite the Trade to take up the following valuable P.A.T.A. Protected Lines, bearing a very large Protected Retail Profit, which sell freely and are well known and valued by the Public in many parts of the country.

	Protected Retail Price.	Dozen Net.
* LOSALL'S SALT (well advertised), tins	6d.	3 6
* " " " "	1/-	7/-
* " " " bottles in cartons	1/6	10/6

* Losall's Salt sells so well, surely it must pay Pharmacists to stock such a big profit-bearing protected line.

LOSALL'S COMPOUND SULPHUR SOAP.

A valuable emollient medicated skin soap, especially suitable for use in Eczema} 1/- 8/-

Chemists requiring effective advertising matter for Losall's Salt, &c., will, on application direct to Lofthouse & Saltmer, receive a liberal supply of Dummies, Showcards, Window Slips, Price Tickets, &c., Carriage Paid, whether or no they have an account open with the Firm.

50 Gold Medals and other Awards, including 2 Grands Prix, Franco-British Exhibition.

Sufferers from DIABETES should INSIST upon having

BRUSSON JEUNE

THE ONLY PALATABLE
& WHOLLY ASSIMILABLE

GLUTEN BREAD

FOR

DIABETES, OBESITY, INDIGESTION,
GOUT AND RHEUMATISM.

Recommended by the Medical Profession.
SOLD by all STORES, BAKERS & CHEMISTS.

SOLE MAKERS—

ÉTABLISSEMENTS BRUSSON JEUNE,
VILLEMUR (Haute-Garonne), FRANCE.

A GOOD LINE FOR CHEMISTS.

TRADE MARK

FRAME FOOD

ON P.A.T.A. LIST.

SHOWCARDS FREE.

FRAME FOOD CO., Standen Road, Southfields, London

A. MILLAR & CO., LTD., DUBLIN

PURE ORANGE WINE

VINUM AURANTII, B.P.

Prepared in strict accordance with the Formula of the British Pharmacopoeia.

(Wholesale only.

London Agent: JAMES STIRTON, 43 GREAT TOWER STREET, E.C.

ALL CHEMISTS
SHOULD STOCK

ABDINE

THE GOLD MEDAL FRUIT DRINK.

Quick Seller. Big Profits. Quarter of a Century's Reputation.
"ABDINE" is the most popular Health Drink. Superior to all Mineral Waters. Sold in 1d. Packets, and Boxes of 13 Packets at 1/- Order through your Wholesale Drug House.

D. M'GLASHAN, M.P.S., 12 West End Place, EDINBURGH.
Wholesale Prices on Application.

Wholesale ALL BRITISH Only.

CRÊPE BANDAGES.

In various widths and qualities. Send for Samples, with Prices, and compare with any foreign production, to The Norwich Crepe Co. (1856), Ltd., St. Augustines, Norwich, who are acknowledged to be the only manufacturers in Great Britain.

HELP TO REDUCE OUR IMPORTS

(which is such a vital feature of the "Silver Bullet" campaign)

by stocking and selling only

"ALL-BRITISH" VACUUM FLASKS

- ¶ These are entirely made in England by British labour — including the essential glass vacuum bottles, of which, before the war, the Germans virtually held the monopoly.
- ¶ One quality only of vacuum, with different finishes (outer case) to suit all purses.

AERATORS LIMITED, Upper Edmonton, London, N.



THE FRENCH NATURAL MINERAL WATER.

VICHY-CELESTINS

**DISORDERS of the LIVER, GOUT,
Diabetes, Rheumatism, Gravel, &c.**

VICHY-ETAT PASTILLES.

Two or three Pastilles after each meal facilitate Digestion.

CAUTION.—Each Bottle from the STATE SPRINGS bears a neck label with the words "VICHY-ETAT" and the name of the SOLE AGENTS: **INGRAM & ROYLE, Ltd., Bangor Wharf, 45 Belvedere Road, LONDON, S.E.**

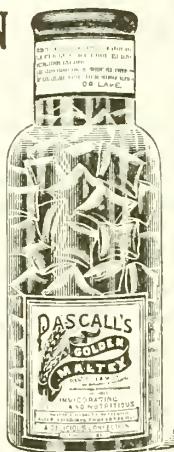
PROPERTY OF THE FRENCH GOVERNMENT.

WHOLESALE AGENTS: **INGRAM & ROYLE, Ltd., Bangor Wharf, Belvedere Road, London, S.E.;** and at Liverpool and Bristol

PASCALL'S GOLDEN MALTEX

Contains
25%
Pure
Malt
Extract

6d. & 1/-
BOTTLES.



of
especial
food value
for
Children.

4 OZS. 3½d.

¶ Pascall's Golden Maltex is admirably suited for sale by Chemists, owing to its nutritive and restorative qualities.

¶ Order through your Wholesale Druggist, or direct from the manufacturers,

JAS. PASCALL, Ltd., LONDON, S.E.

Are You Interested in SAFETY RAZORS

: ENTIRELY :
BRITISH MADE.

SEVEN PATTERN FRAMES
MADE UP INTO
THIRTY-SIX VARIETIES

TO RETAIL FROM

1/- TO 10/6
— EACH. —

Write for Catalogue.

WILLIAM P. KELLAND,
36 Camomile Street, LONDON, E.C.
And 52 St. Enoch Square, GLASGOW.

Prompt Sales Quick Turnover Increasing Demand Protected Price

You stock "Wincarnis" our advertising sells it for you. There is an enormous and ever-increasing demand for "Wincarnis," because it is a good article backed by a powerful advertising campaign. Don't risk losing sales through being out of stock. Glance at your stock now.

IMPORTANT NOTE TO CHEMISTS WITHOUT LICENSES.—It has been established by law that Registered Chemists may sell "Wincarnis with Quinine" without a license.

COLEMAN & CO., Ltd., Wincarnis Works, NORWICH.



FORD, SHAPLAND & CO.
6. Gt. Turnstile, High Holborn, LONDON. W.C.

LABEL & GENERAL PRINTERS
LETTERPRESS, LITHOGRAPHIC, TRI-COLOUR, ENGRAVING, BOOKBINDING, CARTONS, ENVELOPES, SHOW CARDS, PRICE-LISTS, ETC.

TELEPHONE 65 City
TELEGRAMS, FORSHAPCO, LONDON
Works, Whetstone Park.

CLINICAL THERMOMETERS.

Best Quality at Lowest Prices

WRITE FOR PRICE LIST.

40 DIFFERENT KINDS.

Special Quotations to Wholesale Buyers

THE

"MATER"

LENS FRONT (Regd.)

CLINICAL THERMOMETER.

P.A.T.A.

MERCURY COLUMN SEEN AT A GLANCE.

Made in Two Rapidities, 1 Minute and $\frac{1}{2}$ Minute.

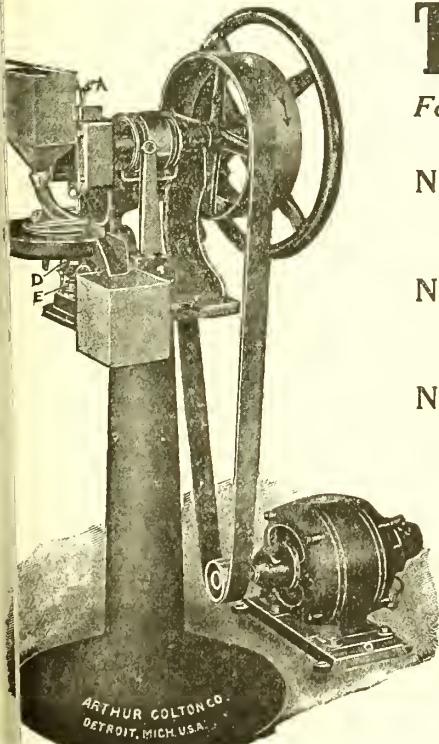
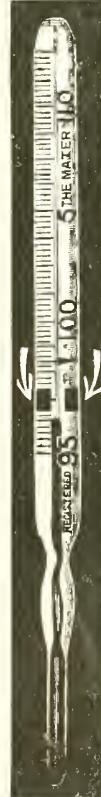
New Price List of Thermometers for every purpose, post free.

PERKEN, SON & CO. LTD.

ESTABLISHED 1852.

Contractors to H.M. Government.

99 Hatton Garden, LONDON.



TABLET MACHINES

For making tablets of all sizes from $\frac{1}{8}$ in. up to 2 in.

No. 2B MACHINE for tablets $\frac{1}{8}$ in. to $\frac{1}{2}$ in. diameter, including 3 sets of punches and dies, £15 10 0
(This machine has a capacity of 125 tablets per minute.)

No. 3B MACHINE for tablets $\frac{7}{32}$ in. to $\frac{5}{8}$ in. diameter, including 3 sets of punches and dies, £36 5 0
(This machine has a capacity of 100 tablets per minute.)

No. 4 MACHINE for tablets $\frac{1}{2}$ in. to $\frac{3}{4}$ in. diameter, including 1 set of punches and die, £67 10 0
A massive machine of great power. (Capacity 90 tablets per minute.)

We keep a large stock of these Machines.
Prompt Delivery.

LISTS FREE ON APPLICATION.

JOHN J. GRIFFIN & SONS, LTD.,
Kingsway, London, W.C.

“LESCOL” FLORAL PERFUMES

In 50 Different Odours.

For Home & Export, to suit all Markets

LINES FROM 1d. TO A GUINEA.

YOUR ATTENTION IS DRAWN TO OUR

EAU DE COLOGNE

In All Sizes.
Own Manufacture

Also LAVENDER WATERS, SMELLING SALTS,
BRILLIANTINES, and all Toilet Preparations.

Write for our NEW PRICE LIST (Illustrated in Colours), showing
our very attractive New Lines, to the

LESCOL PERFUMERY CO.,

Lomond Grove, Camberwell Green
LONDON, S.E.

Telephone: 810 HOP.

Telegrams: “VANILLIN, CAMBER, LONDON.

A powerful antiseptic and deodorant.

“PETAL DUST”^{REGD.}

The greatest of all floral air-purifiers.

A concentrated combination of the choicest flowers, aromatic herbs and roots, with the rare spices and gums of Arabia. “PETAL DUST” has been the favourite perfume of all classes for over half a century and still commands the largest sale of any dried perfume in the world.

Retails in 3d. and 6d. packets

Attractive Showcards, Counter Bills, etc., with customer’s name and address on each packet, for orders of 5 gross and upwards.

SOLE PROPRIETORS—

**THE ROSMARINE MANUFACTURING COMPANY,
STAMFORD STREET, LONDON, S.E.**

CITY DEPOT: H. C. QUELCH & CO., LUDGATE SQUARE, LONDON, E.C.

ROSE VANISHING CREAM

PINK OR WHITE.



NOW is the opportune time to make a display of Rose Vanishing Cream.

Pots, 6/- per dozen.
Collapsible Tubes,
7/- per dozen.



ATTRACTIVE SHOWCARD AS ABOVE GIVEN WITH ORDERS FOR 1 DOZEN.

CUXSON, GERRARD & CO., LTD., BIRMINGHAM.

OVER 100% PROFIT!
ENSURED & PROTECTED (P.A.T.A.)
for sellers of

Laurence's Hair Dyes

One solution, nine shades.

A first-class article with an excellent demand, created entirely on its own merits, and carrying a first-class profit.

Size.	Minimum retail.	Minimum wholesale.	
1/-	1/-	7/6	
1/6	1/6	9/-	per doz.
2/6	2/3	15/-	less 5% discount
3/6	3/3	21/-	

SPECIAL BONUS.

Buyers of 3 doz. bottles receive 3 bottles gratis (may be assorted and any size).

Do. 6 doz. do. 8 bottles gratis.
Do. 12 doz. do. 18 bottles gratis.

Equivalent in the case of the size in most general demand, viz. 1/6 size to 4/6, 12/- and 27/- respectively.

SOLE PROPRIETORS—

**R. HARKER, STAGG & MORGAN,
DEVON WHARF,
Emmott Street, Mile End, London, E.**

A Profitable Seller

THE
"PORTIA"
(Regd.)

NET WEIGHT

Baby Balance

Weighs up to 15 lb.

Price
1 1/6
dozen.
Retail
1/6
each.



Hang a balance in your window with our dainty cut-out showcard in colours on the lower hook, showing a baby actually being weighed, and you will soon be re-ordering.

SOLPORT BROS.,

184 to 190 Goswell Rd., London, E.C.

Obtainable through all Wholesale Houses.

Toogood's Packed Toilet Preparations in Collapsible Tubes.



2629

2667

2508

2509

2542

245

No. 2629.	Toilet Lanoline	...	3 sizes	...	2/9, 3/9 and 5/6 per doz.
2667.	Boracic Ointment	...	2	3/- and 4/6	..
2508.	Cold Cream	...	...	3/6	..
2509.	Vanishing Cream	...	...	3/6	..
2542.	Shaving Cream	...	...	4/6	..
2452.	Solid Brilliantine	...	...	6/-	..

Customer's name free on 3 dozen of any one kind, and showcard supplied.

WILLIAM TOOGOOD, Ltd., 77 Southwark St., London, SE.

STIPENDUM CORK STOPPERS

in
all sizes
suitable for
KALIS, CITRATES,
DISPENSING, and all
FLUIDS.

**STIPENDUM
COVERED POTS**

THE BEST FOR FACE AND TOOTH POWDERS,
PASTES, AND OINTMENTS.

GREASE PROOF.

For Samples & particulars apply to
The
Stipendum Stopper Co.
1 Newman Street,
LONDON, W.
Tel. No. 3769
GERRARD.

AN EFFECTIVE 3d. LINE!



CONSISTS of a piece of ve-
backed Corn Plaster, containing
40% Salicyl. Acid (3" x 1 $\frac{3}{4}$ ").

2 - doz.; 21/- gross. 3 doz. on card.

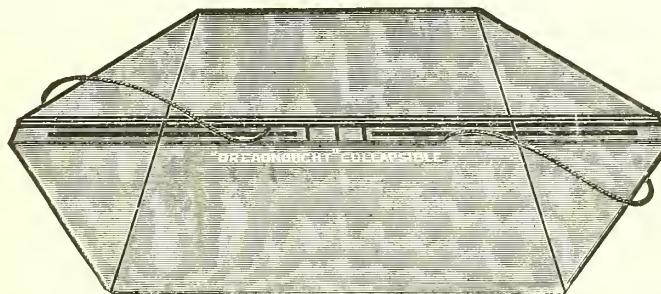
1 Card, post free 6/-. Each packet
bears picture of a Cornfield, Tees
and Poppies.

THOS. SWALES, 24 Butts Court,
LEEDS.

*Don't delay the dispatch of your goods
by waiting for wood boxes.*

"DREADNOUGHT" PATENT COLLAPSIBLE BOXES

possess all the advantages of wood boxes but none of their drawbacks.



Try them for your next consignment.

The result, we know,
will be another customer for

THE GLOBE BOX CO., HYDE, CHESHIRE.

(Proprietors: CARTWRIGHT & RATTRAY, Ltd.)

Tel. No. 115 Hyde (2 lines).

(3)

3d. L
FOBT. BAILEY & SON,

Clegg Hall Mill,

Telephone: LITTLEBOROUGH.
Telegrams: BAILEYS, SMITHY BRIDGE.

SMITHY BRIDGE,
LANCS — Eng.

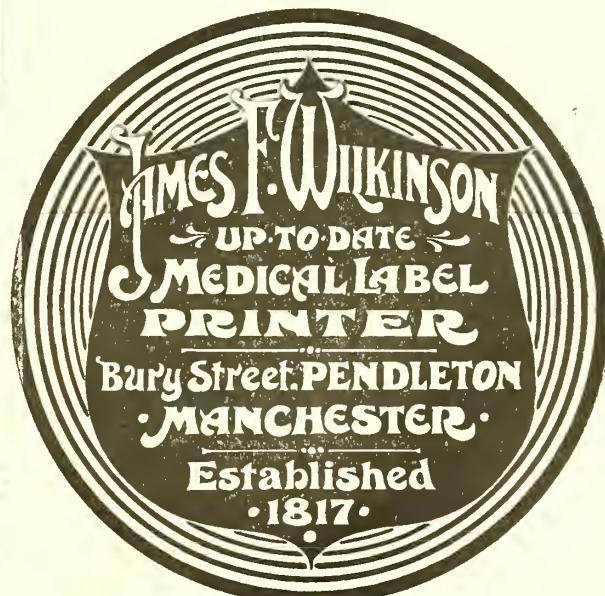
MANUFACTURERS OF
SURGICAL DRESSINGS
ABSORBENT GAUZE TISSUE,
COTTON WOOL, BANDAGES.
LINT, TOW, &c.
PATENT FOUR-PLY GAUZE.

BRITISH MADE
AND
BRITISH OWNED.

WHOLESALE ONLY. Write for Samples and Prices.

LONDON REPRESENTATIVES :
GILVY & CO., Telephone: GERRARD 1674.
1 Bloomsbury Sq., W.C. Telegrams: MICROTOME, WESTCENT, LONDON.

Telegrams: "REINDEER, MANCHESTER."



Telephone: CITY, 1102.

Sphagnol

for
SKIN DISEASES
WOUNDS-SORE FEET

THE successes achieved by Sphagnol and confirmed by medical practitioners place it right in the forefront as a remedy for Skin diseases. Severe and obstinate cases of Eczema yield to its application. It is prescribed by doctors for Eczema, Psoriasis, Acne, Herpes, Ulceration of the Ears, Blepharitis, Ringworm, Dandruff, Hemorrhoids and Pruritus. Sphagnol is being used also as a First-Aid dressing for wounds and for sore feet.

Sphagnol Soaps and Ointment have been awarded the Institute of Hygiene's Certificate for Purity, Quality, and Merit.

Chemists are cordially invited to write for full particulars and free samples.

PEAT PRODUCTS (SPHAGNOL) LTD
19 Queenhithe, Upper Thames St. London, E.C.

YOUR OWN Advertising Literature

can be distributed
as INSETS in the

WINTER ISSUE

OF

THE CHEMIST & DRUGGIST

TO BE PUBLISHED ON

JANUARY 29, 1916

Write NOW for advice
and further particulars to

The Publisher, "The Chemist & Druggist,"
42 CANNON STREET, LONDON, E.C.

TIDMAN'S SEA SALT.

ON P.A.T.A. LIST. INCREASED PROFITS TO ALL WHO KEEP IT IN STOCK.

Orders of Twenty Shillings value and upwards Carriage Paid-Cases Free, less 2½% Discount for Cash.

	Advertised Price. Per Box.	Minimum Retail Price. Per Box.	Minimum Wholesale Price. Per Gross.
1d. Packets	1/-	12 in box 11d.	9/6
2d.	2/-	" 1/10	16/9
1d. Linen Bags	1/-	" 11d.	8/6
2d. "	1/-	6 in box 11d.	16/9
Boxes, about 1½ lb.	4d.	3½d.	2/10 pr. doz.
"	3½d.	8d.	5/8 "
"	7d.	1/2	10/- "
"	14 "	2/-	18/3 "

SINGLE BAGS of following 3 sizes sent CARRIAGE PAID to any place in the United Kingdom, so that there is no Stock to hold.

	Advertised Price. Per Box.	Minimum Retail Price. Per Box.	Minimum Wholesale Price. Per Gross.
28-lb. Bags (or Boxes)	3/- each	3/-	2/6 each
½-cwt. Bags	5/6 "	5/6	4/7 "
1-cwt. Bags	10/- "	10/-	8/4 "

The following are also sent, carriage paid, cases free, to any place in the United Kingdom, for net cash : 4-7 lbs. Boxes 3/- the lot; 6-7 lbs. Boxes and upwards at 10/- per dozen (list price). Orders for assorted sizes to the value of 7/6 and upwards.

TIDMAN'S SEA SOAP, beautifully perfumed.

	Advertised Price. Per Box.	Minimum Retail Price. Per Box.	Minimum Wholesale Price. Per Box.
Box of 3 large Tabs.	1/- each	10/-	7/6 per dozen.
6 small Tabs.	6d.	5d.	3/9 "
Bars about ½-lb.	5d.	4d.	3/- per doz. bars
" 1-lb.	10d.	8d.	6/- "

Accounts Monthly Net due 10th of following month. Term for Seidlitz Powders, Pinnacle Soap Stands, Toilet Soaps, &c. sent on application.

**TIDMAN & SON, Ltd., Wapping
London, E.**

Expurgo Anti-Diabetes

The only reliable and thoroughly satisfactory Remedy for Diabetes-Mellitus which has a record of complete cures.

REPORT FROM A PROMINENT PHYSICIAN.

I am satisfied your preparation has cured several of my patients. Expurgo Anti-Diabetes is particularly effective in combating and neutralising the diabetic poisons and in completely eliminating the sugar excretion characteristic of this disease.

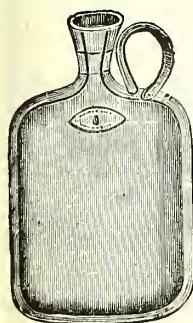
The Medical Faculty is also recommended to try Expurgo Lapis—a particularly valuable preparation in the treatment of Call Stones, Kidney and Bladder Stones and Gravel.

Expurgo Anti-Diabetes, per bottle 8/-, less 25%
Expurgo Lapis - per bottle 6/-, less 25%
Carriage paid on orders of 1 dozen.

THE EXPURGO MANUFACTURING CO.,
815 North Clark Street, CHICAGO, ILL., U.S.A.

Distributing Agents: Rocke, Tompsett & Co.,
4 Redcross Street, London, E.C.

SEASON 1915 16.



INDIA RUBBER HOT WATER BOTTLES

SPECIAL QUALITY.

Guaranteed ENGLISH MAKE.

Fitted with plain Screw or Cockburn's Patent Metal Screw Stopper, with Special Steam Outlet, thus preventing scalding the hands when filling.

JUG SHAPE HANDLE	Size	Each Net	Size	Each Net	Size	Each Net
	6 x 8	2/5	8 x 10	3/3	10 x 12	4/5
	6 x 10	2/8	8 x 12	3 8	10 x 14	5/2
	6 x 12	3/3	8 x 14	4/0	16 x 12	6/6

Each Bottle in a Paper Bag, with spare Rubber Washer, and with full directions for using.

Special Discount of 5% for 1 dozen. Bottles taken at one delivery. Carr. Paid. Sample any size Post Paid.

ALL KINDS OF COVERS MADE TO ORDER. SEE SPECIAL LIST.

J. H. HAYWOOD, Limited, *Wholesale Manufacturers and
Dealers in Druggists' Sundries,
Castle Gate, NOTTINGHAM.*
ESTABLISHED 1833.

Anti-Gun Deafness Device.

Approved by the Admiralty.

THE MALLOCK-ARMSTRONG
EAR DEFENDER.(Mr. A. Mallock, F.R.S.—Messrs. Armstrong, Whitworth, Ltd.)
PATENTED.

Employed in every branch of the three Services, and in the Royal Aircraft and other Factories.

Retail price, any size, 4/-; post free 4/1.

TRADE TERMS and particulars from

THE MALLOCK-ARMSTRONG EAR DEFENDER CO.

86 York Street, Westminster, S.W.

Showroom & Factory: 5 Carteret St. (St. James's Park Station).

Telephone No.: VICTORIA 2944.

THE BRYTSTELE OUTFIT

For Safety Razors

Safety Razors kept in a Brytstele Bath do not require to be taken apart for cleaning or drying. Brytstele Solution keeps blades sharp for at least two months without stropping. Blades and Holders are kept bright, antiseptic, and free from rust.

ATTRACTIVE OUTFITS
AS ILLUSTRATED.

Retail 2s. each ... Trade 17/- doz.

Refill Bottles (4 oz.)

10/- each ... 7/- "

Refill Bottles (10 oz.)

1s. 8d. each ... 13/- "

Carriage paid on dozens only.

THE BRYTSTELE Mfg. Co., 106 High Street, Camden Town, N.W.



Good Showcards, etc.

SOLUBLE QUININE PESSARIES



The "SAFEGUARD" Pessaries (of which we are sole proprietors) are compounded according to a formula which experience has shown to be absolutely the best for the purpose. Nothing but the purest drugs being used in them, they never fail, and can be recommended to customers with the utmost confidence.

PRICES.

1 Dozen in Box, with directions	...	...	...	...	...	...	Per Dozen Boxes	0 11 6
1 " " in 3 Dozen lots	...	...	...	...	...	...		0 11 0

Special Quotations to Shippers and Wholesale Dealers.

5% discount allowed for prompt cash off above prices. Carriage paid on Orders of £2 and upwards to any town in the United Kingdom. We are the right House for BRITISH-MADE GOODS—Bandages, Belts, Catheters, Clinical Thermometers, Combs, Enemas, Elastic Hosiery, Hot Water Bottles, Trusses, Splints, Water and Air Beds, Water and Air Cushions, Waterproof Sheetings, and every description of Rubber and Vulcanite Goods.

ILLUSTRATED PRICE LIST POST FREE. OUR GOODS ARE RIGHT. MONEY BACK IF NOT SATISFIED.

BURGE, WARREN & RIDGLEY, LTD.,
91 & 92 GREAT SAFFRON HILL, LONDON, E.C.

FREDK. FINK & CO.,

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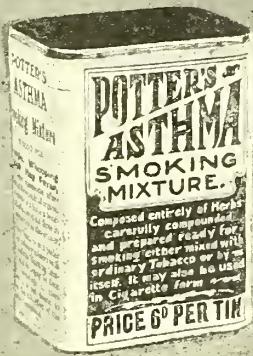
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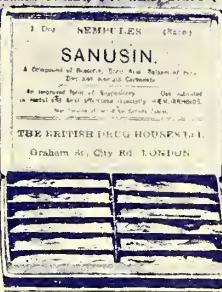
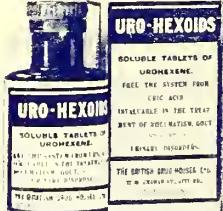
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